

Lower Snake River District Wild Horse Gather

Operational Plan and Environmental Assessment ID-090-03-050



**Bureau of Land Management
Owyhee Field Office/Four Rivers Field Office
3948 Development Avenue
Boise, ID 83705
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Environmental Assessment Record

EA Number: ID-090-03-050

Project Name: Lower Snake River District Wild Horse Gather

Location: The Black Mountain HMA encompasses 50,823 acres, the Hardtrigger HMA 68,705 acres, and the Sands Basin HMA 11,723 acres. Generally, Black Mountain and Hardtrigger HMAs are located between Murphy, Idaho and US Highway 95 to the west. Sands Basin HMA is located west of French John Hill off US Highway 95 (Township 1 South, Range 4 West, Boise Meridian). These areas are south of the Snake River (Appendix 1).

The Four-Mile HMA covers 18,084 acres (Appendix 1) and is located approximately 15 miles north of Emmett, Idaho between Four-Mile Creek and Big Willow Creek (Township 8,9,10 North, Range 1 West, Boise Meridian).

Applicant: Bureau of Land Management, Lower Snake River District

Chapter 1

Introduction

With passage of the Wild Horse and Burro Act of 1971, Congress found that: “Wild horses are living symbols of the pioneer spirit of the West”. In addition, the Secretary was ordered to “manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands”. Since the passage of the Act, the Bureau of Land Management (BLM) Lower Snake River District (LSRD) has endeavored to meet the requirements of this portion of the Act. The procedures and policies implemented to accomplish this mandate have evolved over the years.

Since 1971 BLM experience has grown, and knowledge of the effects of current and past management on wild horses and burros has increased. For example, wild horses have been shown to be capable of an annual increase in numbers by 18 to 25% with wild burros increasing by 11 to 15%. This increase can result in a doubling of the wild horse population in approximately 3 years. Field Offices have learned more about individual herds through vegetation studies, census and gather activities. At the same time, nationwide awareness and attention has grown. As these factors have come together, the emphasis of the wild horse and burro program has shifted. Program goals have expanded beyond simply establishing “thriving natural ecological balance” [setting Appropriate Management Level (AML)] for individual herds to include achieving and maintaining viable vigorous and stable populations.

The National Wild Horse and Burro Strategy involves establishing and achieving AML on all Herd Management Areas (HMAs) managed by the BLM, and maintaining AML on all HMAs following a four-year gather cycle (Instruction Memorandum (IM) No. 2002-095). The numbers of animals projected to be removed, based on this four year rotation, was estimated based on the use of the wild horse population model developed by Dr. Steve Jenkins of the University of Nevada Reno. Animal numbers were first proposed through the Presidents 2001 budget request as a strategy to Achieve Healthy Lands and Viable Herds and the Restoration of Threatened Watersheds Initiative.

Background

In accordance with the applicable laws, regulations, and the National Strategy, appropriate AMLs have been established in the following HMAs of the LSRD:

- Black Mountain
- Hardtrigger
- Sands Basin
- Four Mile

The 1999 Owyhee Resource Management Plan (RMP) established the appropriate wild horse population ranges and management levels for the Black Mountain, Hardtrigger, and Sands Basin HMAs. Due to their close proximity and to improve gather efficiency, these three HMAs are being managed as a complex.

In accordance with the 1987 Cascade RMP, the 2001 Big Willow Environmental Assessment (EA # ID-010-00125) established the appropriate population range and management level for the Four Mile HMA.

These management documents are available at the LSRD Office – Boise, Idaho.

Purpose of and Need for Action

The purpose of the action is to achieve and maintain wild horse populations at appropriate management levels (AML) to maintain sustainable rangelands, protect and/or enhance endangered species habitat, protect riparian resources in accordance with the applicable Land Use Plans (LUP); and determine and maintain wild horse herd health. By removing wild horses within these HMAs, this action would help achieve the following management objectives:

- Manage the populations in the Black Mountain, Hardtrigger, Four-Mile and Sands Basin HMAs to preserve and enhance physical and biological characteristics that are of historical significance to the herd. These traits include:
 - Traits of the founding horses of the herds include Thoroughbred and Quarter Horse traits, large to medium size with good conformation.
 - Historic colors include bay, brown, black, chestnuts, pintos, paints, roans, grays, duns and grullos.
- Manage the wild horse herds for short and long-term population increases and enhance adoptability by ensuring that wild horses displaying desirable traits are preserved in the herd thus providing a reproductive base to increase highly adoptable horses for future demands.
- Identify and preserve historic traits and characteristics within the HMAs, which have proven to be highly desirable by the adopting public to increase the long-term availability of animals bearing these features.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive and genetic health.
- Preserve and maintain a healthy and viable wild horse population that will survive and be successful within the HMA during poor years when elements of the habitat are limiting due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences to the herd.
- Manage the wild horse herds as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.

This environmental assessment will address the Proposed Action and three Alternatives:

- Proposed Action—Remove Wild Horses to Low Population Range and Administer Fertility Contraception.
- Alternative 1—Remove Wild Horses to Mid-point of Population range without applying Fertility Contraception.
- Alternative 2—Remove Wild Horses to Low Population Range without applying Fertility Contraception.
- Alternative 3—No Action

Conformance with Existing Land Use Plans

The proposed action to gather and remove wild horses from the Black Mountain, Hardtrigger, and Sands Basin HMAs, is in conformance with the 1999 Owyhee RMP (ORMP). In the ORMP, WHRS #1 states: “Maintain wild and free-roaming horses in the Owyhee Wild Horse Herd Management Areas at appropriate management levels (AML) within a thriving natural ecological balance. Manage three HMAs for total populations range from 129 - 254 with an allocation of 2,304 AUMs of forage. Decision #4 states: manage free-roaming horses as a component of the public lands in a manner that maintains or improves the rangeland ecosystem.

The Cascade RMP (1987) states that the Four-Mile horse herd will be managed in accordance with the Free-roaming Wild Horse and Burro Act (1971). The 2001 Big Willow Environmental Assessment (EA) set the AML range from 37 to 60 horses with an AUM allocation of 440 to 740.

Table 1. AML ranges as set in land management documents.

HMA	AML Range	Mid-point of AML Range
Black Mountain	30 - 60	45
Four-Mile	37 - 60	49
Hardtrigger	66 - 130	98
Sands Basin	33 - 64	49

Relationship to Statutes, Regulations, Policies, Plans, or Other Environmental Analyses

This action is governed by the Wild Horse and Burro Act of 1971 (Public Law (PL) 92-195 as amended) and Title 43 Code of Federal Regulations (CFR) part 4700. Gathering and disposal of the wild horses would be in accordance with PL 92-195 as amended by PL 94-579 (Federal Land Policy and Management Act (FLPMA)) and PL 95-514 (Public Rangelands Improvement Act (PRIA)). Section 302(b) of FLPMA states that all public lands are to be managed to prevent unnecessary or undue degradation of the lands.

This action is also in accordance with the following Federal Regulations:

- 43 CFR 4710.1, which states: “Management activities affecting wild horses and burros...shall be in accordance with approved land use plans...”
- 43 CFR 4720.1, which states: “Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately.”
- 43 CFR 4710.3-1, which states: “Herd Management Areas shall be established for maintenance of wild horse and burro herds...”
- 43 CFR 4710.4, which states: “Management of wild horses and burros shall be undertaken with the objective of limiting the animals’ distribution to the herd areas...”
- 43 CFR 4740.1(a) (b), which states: “(a) Motor vehicles and air craft may be used by the authorized officer in all phases of the administration of the Act...shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction...”; and (b) “Before using helicopters or motor vehicles... the authorized officer shall conduct a public hearing in the area where such use is to be made.”
- 43 CFR 4180.2(b), which states: “Standards and guidelines must provide for conformance with the fundamentals of 4180.1.”
- This action is also consistent with the consultation requirements of the Endangered Species Act (ESA) and requirements of the National Historic Preservation Act of 1966 (as amended).

Chapter 2

Alternatives

Actions Common to All Alternatives (Exception of the No Action)

During the gather activities, regardless of the alternative selected, members of the Idaho Wild Horse and Burro Team would determine sex, age and color, assess herd health (pregnancy/parasite loading/physical condition/etc), and sort horses as to age, size, sex, temperament and/or physical condition, and would return selected animals to the range. In addition, several types of data would be collected, including biological samples, for analysis and inclusion into planning documents.

BLM is required to comply with IM No. 2002-095: Gather Policy & Selective Removal Criteria for Wild Horses. The BLM policy, as stated in this IM, is summarized below and applies to all alternatives analyzed in this EA with the exception of the No Action Alternative.

Gather Requirements

In accordance with the Gather Policy and Selective Removal Criteria for Wild Horses, Washington Office IM 2002-095, the following priorities would be followed when conducting wild horse gathers and removals.

- **Gather Schedule**

To achieve and maintain AML on all HMAs a 4 year gather cycle will be followed for each HMA. The numbers of animals projected to be removed, based on this 4 year rotation, was estimated based on the use of the wild horse population model developed by Dr. Steve Jenkins of the University of Nevada Reno. These population numbers, by state and year, were first proposed through the President's 2001 budget request as "Strategy to Achieve Healthy Lands and Viable Herds, The Restoration of Threatened Watersheds Initiative," and later approved by Congress. Idaho is scheduled to remove 368 horses in FY2004 to achieve AML by 2005.

- **Selection Criteria**

Wild horses will be selected for release back into the HMA that will adhere to both the objectives for the HMA and the National Selective Removal Policy to the extent possible.

1. National Selective Removal Policy

The selective removal criteria described below are in effect for all wild horses to be placed into BLM's national adoption program or long term holding facilities. These criteria are not applicable to wild burros.

a. Age Class Five Years and Younger: Wild horses five years of age and younger may be removed and placed into the national adoption program.

b. Age Class Ten Years and Older: Wild horses ten years of age and older may be removed and placed into long-term holding. Any animals within this age class that are in the Henneke category of 2 or less and have no chance of timely improvement would be evaluated for euthanasia. Any euthanasia would be in accordance with Washington Office IM 2001-165. Older horses that, in the opinion of the Authorized Officer, may survive if released but probably would not tolerate the stress of removal, preparation, and holding would be evaluated for return to the HMA.

c. Age Class Six to Nine Years: Wild horses aged six to nine years old should be removed last and only if the HMA cannot achieve AML without their removal.

2. Age Structure and Sex Ratios

All horses 6 to 9 years old, will be released back into the HMAs to comply with IM 2002-95. To stay within AML ranges, additional horses also may have to be released. These will be from all age classes except weanlings. An approximate ratio of 60:40, mares to studs, will be released with horses returning to different HMAs than they were gathered from.

- **Data**

The following data would be collected on all gathered horses, to assure an adequate database.

1. **Blood Samples.** Blood samples would be collected and analyzed to establish genetic baseline data (genetic diversity, historical origins of the herd, unique markers, plus norms for herd) for the HMA. These samples would be collected from all animals gathered, including those released. The minimum sample size is 25% of AML or a minimum of 25 samples and not more than 100 per population. A sample is defined as the collective blood for an individual animal (i.e., two tubes per horse). Blood would be drawn from both mares and studs in a ratio similar to the sex ratio released. The test would consist of analyzing 29 systems (17 typing and 12 DNA). The data would be compared to similar data from both domestic and wild horse populations. A sample of DNA would be preserved (frozen) for each horse tested. Blood samples would be sent Dr. Gus Cothran, Department of Veterinary Science, University of Kentucky for analysis.
2. **Sex ratio/Age Structure.** The number of release animals along with their sex and age would be recorded. An estimate of the number, sex, and age of animals that were not gathered would be estimated and recorded.
3. **Reproduction and Survival.** Information on reproduction and survival would be collected to the extent possible, through documentation of the wild horses captured during the gather, and the age of those released following the gather.
4. **Characteristics.** Color and size of the animals would be recorded. The type of horse would be noted if it can be determined, or a general impression of the type of horses gathered within the HMA. The blood analysis would provide a comparison with domestic breeds and other wild populations that have been tested.
5. **Other Data.** All other data believed to be essential to the population management effort would be collected during the gather. This may include parasite load, disease (from blood samples), percentage of pregnant mares, or other data.

- **Removal Procedures**

The LSRD would conduct gathers in four HMAs during the fall of 2003. The Idaho Wild Horse and Burro Team, with assistance of personnel from other BLM offices, such as Vale and Rock Springs Field Offices, would direct gather operations.

Multiple capture sites (traps) may be used to capture wild horses from the HMAs. Whenever possible, capture sites would be located in previously disturbed areas. All capture and handling activities (including capture site selections) would be conducted in accordance with Standard Operating Procedures (SOPs) described in Attachment B. It is estimated that four to six trap sites would be required to complete the gather. Clearances for cultural sites and threatened and endangered plants will be completed before gather operations begin. If a sensitive site is located in the trapping area, the trap site will be changed.

An APHIS (Animal and Plant Health Inspection Service) Veterinarian or other qualified veterinarian would be on-site throughout the duration of the gather operations to examine animals and make recommendations to the Team Specialists for care and treatment of injured horses. Consultation with the veterinarian would take place prior to euthanasia in accordance with BLM Washington Office IM 2001-165.

Young foals that are gathered as orphans, are weak, or need special care would be adopted to qualified adopters immediately or given to horse rescue volunteers. Every precaution would be taken to ensure that young or weak foals are safely cared for. Often, no orphans are encountered and other times, the frequency increases due to environmental or animal conditions.

The pilot would be provided through an existing contract with BLM in accordance with BLM and Office of Aircraft Service (OAS) regulations. No BLM personnel would be allowed in the helicopter during the actual moving of horses. The decision regarding bands of horses to be captured would be made by LSRD Wild Horse Specialist during a pre-gather flight. Bands of horses located outside the HMA boundary would be gathered or driven by helicopter back into the HMA.

As much as possible, existing roads and trails would be used to move horses to the trap. This would reduce impacts to soils and vegetation from trampling and would decrease the possibility of injury to horses.

Other safeguards to ensure the safety of the horses and people are:

1. Allotment and pasture fences would be rolled back, as appropriate, from the path of horses en route to the temporary traps.
2. Use of the temporary traps would ensure that horses would not have to travel excessive distances. This is especially critical for foals.
3. The rate of movement of horses to the trap would not exceed those set by the BLM authorized officer, taking into account the distance to the trap, prevailing weather conditions, presence of foals, and the general condition of the horses. Generally, horses would be moved no faster than 5-6 miles per hour (trotting) or less to avoid stress.
4. The gathering would take place during mid-October when foals should be old enough to keep up with the band movement. Also, there should be fewer mares carrying foals that late in the season.
5. Safety would be emphasized during equipment movement to and from trap sites, during the process of building and dismantling traps.

● **Holding and Transporting Procedures**

Once horses have been captured at the temporary trap site, they would be transported by truck to the BLM corrals in Boise. Horses would be separated by sex, age class, and wet/dry mares and injured animals. Feed and water would be available if it became necessary to hold horses at the temporary trap site longer than 10 hours. Older horses (over 10 years) may be separated and returned to the herd areas, while younger animals would be removed. The veterinarian would conduct a visual examination of each horse either at the trap site or immediately after they arrive in Boise to ensure there are no physical or biological abnormalities or life threatening conditions present. The horses would be allowed several days of rest to acclimate themselves before preparation takes place. Preparation would consist of freeze branding, ageing, worming, and blood samples for Coggings testing and genetic research, and inoculations. Horses would then be available for private adoption under the BLM adoption program. During preparation operations, if an emergency with hazardous materials occurs, the Hazmat Coordinator will be notified.

All branded horses caught during the gathering process would be impounded at the corrals in Boise until the owner provides proof of ownership of the horse. Proof of ownership would be subject to the laws of the State of Idaho. A willful trespass fee per AUM and a prorated cost of the removal would be charged to

retrieve these animals. Unclaimed branded animals would be turned over to the Idaho State Brand Inspector.

- **Destruction of Injured Horses**

Injuries to horses which are determined by a veterinarian to be permanent, would be destroyed after approval by the BLM authorized officer. Animals would be destroyed in the most humane manner possible either by lethal injection or with a firearm. Only injectable barbiturates (e.g., sodium phenobarbital) would be permitted for use as euthanasia agents. Firearms would be used only as a last resort where a horse cannot be safely restrained for the administration of drugs. In no event would carcasses or any part thereof be sold or processed into a commercial product.

Proposed Action - Remove Wild Horses to Low AML Population Range and Administer Fertility Contraception

The Proposed Action is to gather approximately 253 wild horses within the four HMAs (Table 2). This would include removing approximately 203 wild horses and administering immunocontraceptive on all mares that would be returned to the public lands. It is estimated that an additional 30% of the herds would be gathered from each HMA in order to administer the fertility contraception. The goal of the proposed action is to treat 100% of the mares released which would be approximately 30 – 35 animals.

Table 2. Removal of Wild Horses to Low Population Range w/Fertility Control.

HMA	Total # Captured	# Returned	# Removed	2003** Population	AML Range
Black Mountain	68	9	59	89	30 – 60
Four-Mile	53	11	42	79	37 – 60
Hardtrigger	103	20	83	149	66 – 130
Sands Basin	29	10	19	52	33 - 64
Total	253	50	203	369	

** Estimated population from 2002 Census and production rates (Appendix 2).

The National Selection Criteria would be followed to the extent possible; however, an estimation of age structure of the herds reveals that only a small percentage captured would fall into the age category of 6-9 years old. Therefore, it is anticipated that the additional animals from the younger or older categories would need to be released to reach AML. Removing animals older than 9 years of age would be preferred due to decreased adoption demand of older animals and increase the number on younger animals in the population. Horses that do not meet adoption age criteria, will be sent to long-term holding facilities.

Color and conformation would also be considered when choosing animals to release. Exceptional animals that represent historic coloring, size and confirmation may be chosen for release outside of the selective removal priorities. Wild horses to be released would be selected for health, stamina, strength and mothering abilities when these factors can be determined. Weak, unhealthy and unthrifty animals would not be selected for release back onto the HMAs.

The sex ratio of the wild horses captured in the HMAs is expected to favor studs, due to the fact that studs tend to reflect lower mortality rates than mares, and the fact that horses that evade capture during gathers are typically studs. This indicates that the anticipated sex ratio of the HMAs will likely approximate 60% studs and 40% mares. Therefore, in order to ensure that a near normal sex ratio is maintained, the goal for the gather would be to release approximately 60% mares and 40% studs. Population increases and growth rates, within HMAs, supporting the proposed alternative are derived from The Wild Horse Population Model Version 3.2 developed by Dr. Steve Jenkins, Associate Professor, University of Nevada Reno (Appendix 4). Appendix 2 establishes the parameters used for this HMAs modeling runs.

The task of selecting animals for release is difficult. To enhance the selection process, it is anticipated that many more animals in excess of AML would initially be separated for release. A final sorting will be completed to select the exact animals for release, based on specific traits and ages.

Remove Wild Horses Currently Outside of the Black Mountain and Hardtrigger HMAs

Due to perennial problems with gates being left open, approximately 12 horses are currently in the Nancy Gulch Pasture of the East Reyonlds Creek Allotment, west of the Black Mountain HMA (Appendix 1). These horses will be removed from the allotment and offered for adoption (if they meet age criteria).

In addition, six horses which are currently in the Alkali Springs Pasture of the Elephant Butte Allotment, west of the Hardtrigger HMA (Appendix 1) will be removed. These horses have been within this pasture since 2001 and have not shown any interest in moving out of the Alkali Spring drainage.

Perennially, one band of Hardtrigger HMA horses (16-20 horses) move down from higher elevations and spend the winter and early spring months in the Moon Orchard Pasture of the Elephant Butte Allotment, north of the Hardtrigger HMA (Appendix 1). During the winter months, they are foraging on an early spring livestock grazing pasture, generally removing spring vegetation allocated for livestock grazing, not wild horse use. Eligible animals within this band would be offered for adoption. The remaining mares would be treated with fertility contraception and released in another area of the HMA.

Remove Wild Horses in the Little Hardtrigger Pasture of the Hardtrigger Allotment

As a result of Judge Winmill's February 29, 2000, Memorandum Decision and Order, the following interim terms and conditions apply to livestock grazing in the Hardtrigger Allotment:

- Key herbaceous riparian vegetation, where stream bank stability is dependent upon it, will have a minimum stubble height of 4 inches on the stream bank, along the greenline, after the growing season.

Although, Judge Winmill's Court Order directly applies to livestock grazing, it is directly in accordance with healthy riparian and fisheries management objectives as outlined in the 1999 Owyhee RMP (RIPN1, pages 13-14; and FISH1, page 18). In 2001, a year following the gather, the 4-inch stubble height objective had not been achieved by the end of the growing season (generally October 1). As indicated in the Table 3 below, the average median stubble height for those years was 2.5 inches, well below the 4-inch objective. As also noted in Table 3, the average stubble height after livestock were removed in early July each year was 6.0-6.5 inches in height. The data indicates that the horses are negatively impacting the riparian habitat and not livestock.

Table 3. Stubble Heights after Livestock Removal and at the End of the Growing Season.

Year	*Median Stubble Height in July	Median Stubble Height at the End of Growing Season
2001	6.0"	2.0"
2002	6.5"	3.0"

*Stubble height inspected after cattle were removed from the Little Hardtrigger Pasture.

Approximately 2-3 bands of horses have been found to inhabit the Little Hardtrigger drainage of the Hardtrigger HMA annually (Appendix 1). Actual numbers in each band since 2001 have ranged from 8-20 horses. In July 2002, one band with 12 horses was observed on the ridgeline located east of Little Hardtrigger Creek. Under this proposed action, it would be a high priority to gather the bands located within this drainage and remove the animals that meet the removal criteria to be adopted.

Immun contraceptive Treatments

Once transported to the LSRD wild horse corrals, all mares to be released back to the HMA would be treated with an immun contraceptive vaccine, Porcine zona pellucidae (PZP). The inoculation of mares would consist of a liquid dose of PZP vaccine and a time released portion of the drug in the form of pellets. The approach incorporates the PZP into a non-toxic, bio-degradable material which can be formed into small pellets. The pellets would be injected with the liquid and are designed to release PZP at several points in time much the way time-release cold pills work. This formulation would be delivered as an intramuscular injection by a jabstick syringe, into the mares in the working chute. Upon impact, the liquid in the chamber would be propelled into the muscle along with the pellets. This delivery method has been used previously to deliver immun contraception vaccine with acceptable results. Such a vaccine would permit a single injection to provide up to two years of contraception at approximately 90% efficiency.

Delivery of the vaccine would be by means of syringe or dart with a 12 gauge needle or 1.5" barbless needle. A dose of 0.5 cc of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be placed in the barrel of the syringe or dart needle and would be injected with the liquid. Only trained personnel would mix and/or administer the vaccine.

All treated mares would be identified and freezemarked with an Idaho State approved identification (such as a letter or a number) on the left hip to enable positive identification for future tracking and data collection of the animals. Inoculated mares that are pregnant would foal normally during the initial year, the contraceptive would then limit foal production the following two years. Annual monitoring would be conducted during the effectiveness of the fertility control. Helicopter flights will be conducted to identify production of treated mares verses untreated mares. This monitoring data will be analyzed to decipher whether this treatment can be used as a viable tool for the management of small wild horse populations.

The implementation of the Proposed Action would prevent the populations from increasing beyond the upper population range until the fourth year, in which a gather would be scheduled depending upon funding and population growth increases. This would ensure a vigorous and viable breeding population, reduce stress on vegetative communities and wildlife, and be in compliance with the Wild Free Roaming Horse and Burro Act, Resource Advisory Council Standards and Guidelines, and Land Use Plan management objectives.

Alternative 1 - Removal to Mid-Point of Population Range without Fertility Control

Under this Alternative, BLM would capture approximately 183 wild horses within the HMAs (Table 4). An additional 30% of the animals in each HMA would be captured to adhere to the gather policy of returning all horses in the 6 to 10 year age group. Approximately 125 wild horses would be removed from the HMA; this would reduce the population to the mid-point of AML range established through monitoring data and the maximum population for which thriving natural ecological balance will be maintained.

Table 4. Removal to mid-point of population range without fertility control

HMA	# of Horses Captured	# Removed	Mid-point of Population Range	2003** Population	AML Range
Black Mountain	58	44	45	89	30 – 60
Four-Mile	45	30	49	79	37 – 60
Hardtrigger	80	51	98	149	66 – 130
Sands Basin*			49	52	33 - 64
Total	183	125		369	

* Sands Basin would not be gathered.

** Estimated population from 2002 Census and production rates (Appendix 2).

Using the population rate (PR) from the 2002 census, populations would increase annually and would exceed the upper range level of AML by 2005. Under this alternative and using the 2002 production rates (Table 5), it is doubtful that even by conducting the immunocontraception procedures that the horse population would adhere to current BLM policy of managing HMAs on a four year gather cycle. Census figures for FY2002 flights can be found in Appendix 2.

Table 5. Population estimates using 2002 PR, to determine 2004 – 2007 Populations

HMA	AML Range/Mid-point	PR	04	05	06	07
Black Mountain	45	22%	55	67	82	102
Four-Mile	49	20%	59	71	64	77
Hardtrigger	98	26%	123	155	195	245
Sands Basin	49	34%	65	87	117	157

Alternative 2 - Removal to Lower Limit of Population Ranges without Fertility Control

Under this Alternative, BLM would capture approximately 223 wild horses from the HMAs. Twenty or more additional horses may need to be captured to adhere to BLM policy, of returning all horses in the 6–9 year age category back into the HMAs. Approximately 203 wild horses would be removed which would reduce the population to the low population range (Table 6). No fertility control would be implemented, and all mares would continue to foal at normal rates.

Table 6. Removal of Wild Horses to Low Population Range w/o Fertility Control.

HMA	Total # Captured	# Removed	2003** Population	AML Range
Black Mountain	68	59	89	30 – 60
Four-Mile	53	42	79	37 – 60
Hardtrigger	103	83	149	66 – 130
Sands Basin	29	19	52	33 - 64
Total	223	203	369	

** Estimated population from 2002 Census and production rates (Appendix 2).

Under this alternative, using 2002 production rates, the horse population would increase and exceed the upper range of AML by the third year. However, the Black Mountain HMA would exceed the limit by the fourth year. (Table 7). Production rates (PR) and census figures for the 2002 foal crop can be found in Appendix 2.

Table 7. Population estimates using 2002 PR, to Determine 2004 – 2007 Populations

HMA	AML Range	PR	04	05	06	07
Black Mountain	30 – 60	22%	37	45	55	67
Four-Mile	37 – 60	20%	44	53	64	77
Hardtrigger	66 – 130	26%	83	103	130	164
Sands Basin	30 – 60	34%	44	59	79	105

Alternative 3 - No Action

Under this alternative a wild horse gather would not take place in the HMAs. There would be no active management to control the size of this population at this time. Under this alternative, the current population would continue to increase at a rate of 20% - 34% annually. Predators do not substantially regulate wild horses in any of the areas. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95%. Survivability rates collected through research efforts are as follows: the Pryor Mountain Wild Horse Range, Montana: >95%; 15 years and younger, except for foals, both sexes: 93%; Granite Range HMA, Nevada: >95%; 15 years and younger, except for male foals: 92%; and Garfield Flat HMA, Nevada: > 95%; 24 years and younger, except both foals, both sexes: 92%. With these survival rates, this alternative would result in a steady increase in wild horse numbers, which would greatly exceed the carrying capacity of the range.

Table 8. Wild horse population estimates for 2004 – 2007 without Removal.

HMA	2003 Population**	PR	04	05	06	07
Black Mountain	89	22%	109	133	162	198
Four-Mile	79	20%	95	114	137	164
Hardtrigger	149	26%	188	237	299	377
Sands Basin	52	34%	70	94	126	169

** Estimated population from 2002 Census and production rates (Appendix 2).

The population of wild horses would compete for the available water and forage resources with the areas closest to the water experiencing severe utilization and degradation. Over the course of time, the animals would deteriorate in condition as a result of declining forage availability and the increasing distance traveled to forage. The mares and colts would be affected most severely. The continued increases in population would eventually lead to catastrophic losses to the herd, which would be a function of the available forage and water and the degradation of the habitat. A point would be reached where the herd reaches the ecological carrying capacity and both the habitat and the wild horse population would be critically unhealthy.

Ecological carrying capacity of a population is a scientific term, which refers to the level at which density-dependant population regulatory mechanisms would take effect within the herd. At this level, the herd would show obvious signs of ill health, including poor individual animal condition, low birth rates, and high mortality rates in all age classes due to disease and/or increased vulnerability to predation. In addition, irreparable damage would occur to the habitat through overgrazing, which is not only depended upon by wild horses but by wildlife (which include sensitive species), and permitted livestock. All multiple uses of the area would be impacted. Irreparable damage to the resources, which would include primarily vegetative, soil and riparian resources, would have obvious negative impacts to the land and its' natural resources and all other users which depend upon them for survival.

This alternative would not be acceptable to the BLM nor most members of the public. The BLM realizes that some members of the public advocate "letting nature take its course"; however, allowing horses to die of dehydration and starvation would be inhumane treatment and would clearly indicate that an overpopulation of horses exists in the HMA. The Wild Free-Roaming Horse and Burro Act of 1971 mandates the Bureau to "prevent the range from deterioration associated with overpopulation", and "remove excess horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area". Additionally, Promulgated Federal Regulations at Title 43 CFR 4700.0-6 (a) state "Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat".

The No Action Alternative would be unacceptable, and would violate the Wild Free Roaming Horse and Burro Act, Federal Regulations, BLM Policy and Resource Advisory Council Standards and Guidelines, and land use plans.

The following table offers a comparison of the various components of each Alternative discussed in this EA.

Table 9: Comparison of Alternatives

Alternative	Capture Wild Horses	Remove Wild Horses	Release Wild Horses	Data Collection	Fertility Control	Meeting Purpose and Need
Proposed Action	253	203	50	Yes	Yes	Yes
Alternative I	183	125	58	Yes	No	No
Alternative II	230	203	27	Yes	No	No
Alternative III No Action	0	0	0	No	No	No

- **Non-compliance with IM 2002-095**

Alternatives 1 and 2 do not comply with the initial portion of the policy stated in I.M. 2002-095, "To achieve and maintain AML on all HMAs, a four year gather cycle will be followed." Due to the high productivity rates of these HMAs, neither of these alternatives will allow establishment of a four year gather cycle. No additional analysis will be done on either of these alternatives.

Chapter 3

Affected Environment

General Setting

The three HMAs located in northwestern Owyhee County are Black Mountain, Hardtrigger and Sands Basin. They extend from the Oregon border southwest to the town of Murphy, south for approximately 20 miles and then northwest roughly, parallel to the northern boundary (Appendix 1). The Four-Mile HMA is located in southwest Idaho in both Gem and Washington Counties, north of Emmett, Idaho (Appendix 1).

Critical Elements of the Human Environment

Some of the elements of the human environment are subject to requirements specified in statute, executive order, or policy and must be considered in all environmental assessments. Others have been added because of their importance in assessing impacts. All of the following elements have been analyzed. However, elements denoted by an "X" are not affected by the proposed action and would receive no further consideration.

Air Quality	X	Areas or Critical Environmental Concern	X
Cultural Resources		Farm Lands (Prime or Unique)	X
Floodplains	X	Threatened/Endangered Plants	
Threatened/Endangered Animals	X	Native American Religious Concerns	X
Threatened/Endangered Fish	X	Wastes, Hazardous Materials	
Water Quality		Wetlands	
Wild & Scenic Rivers	X	Wilderness	X
Availability of Access/Need to Reserve Access	X	Soils	
Wild Horses		Mineral Resources	X
Vegetation Types-Range Resources		Riparian Zones	
Environmental Justice (EO 12989)	X	Forest Resources	X
Wildlife		Paleontological Resources	X
Economic Feasibility of Agricultural Entry	X	Tribal Treaty Rights	X
Indian Trust Resources	X	Visual Resources	X
Recreation, Existing and Potential	X	Economic/Social Values	X
Grazing Management		Fisheries	
No chemical or chemicals from the EPA's <u>Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986</u> . (10,000 pounds or more), would be used, produced, stored, transported, or disposed of in implementing the proposed action. No extremely hazardous substances, as defined in 40 CFR 355, would be used, produced, stored, transported, or disposed of in implementing the proposed action. <i>If this element is not checked, see EA document for further details concerning these chemicals and/or hazardous substances.</i>			X

Elements, which are present and may be affected, are discussed below:

Affected Environment/Impacts

Hazardous Wastes

Affected Environment: Approximately 300 wild horses would be prepared for adoption at the LSRD Corrals. These horses would be vaccinated and freeze branded. The vaccination needles and liquid nitrogen used for freeze branding would be handled by the veterinarian and/or by qualified BLM personnel who have been approved for these procedures. Hazardous materials (medical and biological in nature) produced during these operations would be kept under the supervision of the contract veterinarian and disposed of according to federal and state regulations.

The gather activities may result in moderate increases in dust and/or combustion engine exhaust generated by mechanical equipment. Impacts would be temporary, small in scale, and dispersed throughout the proposed capture area. Impacts would be kept to a minimum by following the SOPs described in Attachment B.

Impact of Proposed Action: Wild horses being adopted to the public require vaccinations and permanent identification marks through freeze branding. Needles, syringes and other terminal equipment used in the inoculation and branding procedures would be disposed of according to federal and state regulations.

Impact of No Action Alternative: Under the no action alternative wild horses would not be captured. No vaccination or freeze branding would be necessary.

Cultural Resources

Affected Environment: Most of the herd management areas have not been systematically surveyed for cultural resources. A small percentage of the area has been surveyed as part of fire rehabilitation efforts, the Class II Archaeological Inventory and several small-scale range improvement projects. Recorded sites reflect the full range of human activity.

Impact of Proposed Action: Grazing animals can adversely impact cultural resource sites. Herding and trailing activities can physically damage artifacts, increase erosion, and destroy site context.

This wild horse gather is not expected to adversely impact significant cultural resources because inventories will be completed prior to construction at trap sights. The result of fewer horses on the area will be a positive impact for cultural resources.

Impact of No Action Alternative

As stated above, grazing animals can adversely impact cultural resource sites. Continuous grazing, herding, trailing and trampling caused by a large population of horses can increase in erosion at cultural sites and in turn, an increase in artifact visibility. This could lead to increased illegal artifact collecting in the area.

Water Quality

Affected Environment: There are eleven perennial streams (lotic systems) located throughout the four HMAs. As stated in the Owyhee RMP and the Big Willow EA, these resources have been negatively impacted by grazing animals, which include cattle and wild horses. Wild horses are known to have impacted some seeps, springs and streamside riparian areas within the HMAs. Impacts have occurred primarily when large numbers of wild horses congregate in these areas.

Water quality monitoring is being implemented to provide current and ongoing data trends, status of beneficial uses and BMP (Best Management Practices) effectiveness in meeting water quality standards and protecting existing beneficial uses.

Compliance and consistency with the State nonpoint source management plan, State water quality standards and the Clean Water Act (CWA) is mandatory. The CWA places responsibility for protection of water quality with the States and requires federal agency compliance. Improving the rangeland conditions and vegetation cover by reducing the amounts of vegetation grazed by wild horses and better distribution of the animals, would have a positive affect on watershed stability and water quality

Impact of Proposed Action: Removal of wild horses would aid in relieving pressures on the existing drainages. Annual runoff from public land is variable and is dependent on soil type and properties; vegetation type and density; watershed aspect and slope; amount of precipitation; and management practices. Forage deficits could deplete the vegetative cover needed to protect watersheds from runoff and erosion and could cause long-term watershed problems. Sensitive (e.g., fragile soils) watersheds have a very high erosion potential and are frequently high in salts. Because wild horses tend to remain in the same area year after year, watershed conditions in these sensitive watersheds are at an extreme risk of becoming even more degraded. Proper grazing practices within fragile watersheds are necessary in reducing erosion and sedimentation from both streambed and upland sources.

Impact of No Action Alternative: Continued problems would become evident in the HMAs with annual increases in horse numbers and year-long use of all of these systems, major damage would occur.

Wetlands/Riparian Zone

Affected Environment: There are eleven perennial streams (lotic systems) located throughout the four HMAs. There are also abundant springs, wet meadows and seeps (lentic systems), with most, but not all, located in the higher elevation zones above 5,000 feet. The streams are critical habitat for the red band trout which is considered a BLM sensitive species. These streams are used by livestock, horses and wildlife for water throughout the year. Rabbit Creek, Reynolds Creek and Moores Creek are located in the Black Mountain HMA. Reynolds Creek is also the boundary between the Hardtrigger HMA and Black Mountain HMA. The Hardtrigger HMA has six perennial streams which include Cottle Creek, Hardtrigger Creek, Little Hardtrigger Creek, Pole Creek, Macks Creek, Salmon Creek, Squaw Creek and Wilson Creek. Jump Creek is the only perennial stream found in the Sands Basin HMA. Portions of Four-mile Creek on the west side of the Four-mile HMA is impacted sparingly by horses.

These streams are all spring fed and most flow throughout the year. A condition rating was completed and focused on evaluating stream function characteristics and existing vegetation habitats. In general, condition of streams within the HMAs varied considerably from properly functioning condition to non-functioning condition. Wild horse use has attributed, at least partially, to their current condition. Characteristics of a properly functioning riparian area include banks stabilized by riparian vegetation, accessible floodplains, water storage in the banks due to high organic content, high water tables, and the ability to dissipate energy and to trap sediment.

Other intermittent and ephemeral drainages lying within the HMA provide water and forage to the resident horses. Riparian areas and meadows associated with springs and seeps are generally in fair to poor condition due to altered hydrologic processes and community types and compacted soils throughout the HMAs.

Impacts of Proposed Action: Reducing the horse populations within the four HMAs is expected to: (1) promote more seasonality grazing use patterns by horses, (2) remove the difficult problem of long duration horse use, and (3) allow livestock management prescriptions designed to enhance riparian and channel conditions to operate as intended. Cumulative grazing use patterns that are more seasonal, of shorter duration, and of reduced intensity, would be more consistent with desired maintenance or improvement of riparian habitats and channel systems.

Horses contribute to the cumulative removal of herbaceous material from channel features and valley terraces. The excess horses above the AML range and horses outside the HMA, either through prolonging the duration and/or intensity of grazing use, exacerbate grazing-related effects on riparian condition and function. These include: (1) Increasing the rate and absolute quantity of bank and floodplain vegetation removed, which impairs the systems ability to capture and retain sediment for channel development and restoration processes. This effect can involve extending concentrated use more deeply into the growing season or increasing dormant season use when there are no further opportunities for regrowth and reestablishment of effective stubble. (2) Prolonging growing season use that depresses the vigor and density of channel vegetation and selects against those obligate herbaceous forms that yield optimum channel stability and erosion resistance. (3) Reducing plant vigor and density and reducing residual surface litter on valley terraces, which reduces moisture infiltration and alluvial storage that sustains and prolongs delivery to adjacent channels through the summer and fall months. Reducing the duration and intensity of grazing by wild horses along these valley terraces would increase foliar cover, surface litter, and stem/root mass densities, thereby enhancing moisture infiltration and directly increasing channel recharge and contributing incrementally to prolonged flow and vegetation expression in adjacent channels. Removing horses outside the HMA would eliminate the minor influence of horse use on riparian-bearing channels, but more importantly, would eliminate the potential for the eventual development of grazing-related problems on these systems as horse populations expand.

Impact of No Action Alternative: This alternative would contradict the direction and objectives for riparian management prescribed in the Owyhee RMP and Big Willow Watershed Plan. The overall at-risk status of the streams within the HMA would persist in the short term. However, as horse populations continue to expand, both in terms of numbers and distribution, there is a high likelihood that these channels, which rely on predominantly facultative vegetation, would be incapable of withstanding further impacts to system stability. It is expected that channel and vegetation damage attending increased trampling and higher intensity grazing use over increasingly prolonged periods of use would soon reach untenable levels, prompting episodes of downcutting and bank caving. It is unlikely that intervening at-risk reaches would be capable preventing progressive, long-term channel deterioration.

Soils

Affected Environment: The soils within the HMAs are shallow (20 inches) to moderately deep (20-40 inches), stony loams to clay loams derived from extrusive igneous rocks. Sands Basin HMA is characterized by rhyolite and basalt plateaus, basin lake deposits, rhyolite benches and alluvial fan terraces. The Black Mountain and Hardtrigger HMAs are characterized by upland rhyolites, basalts and granitics with lower granitic alluvial fans and rock outcrops. Rill and gully erosion potentials are low on most of the areas. All the soil types within the HMAs have good infiltration rates although some may have a clay horizon within 20 inches of the surface that may perch surface water.

In the Four-mile HMA, the soils in the area are dominated by basalt and alluvium. They are well drained with shallow and moderately deep soils most dominant. These soils usually have a stoney surface and slopes ranging from 3 to 60 percent. They are characterized by dark brown loam or clay loam surface horizon. Permeability is very slow and runoff is moderate-rapid. The erosion hazard is slight to high depending on the slope.

Impacts of Proposed Action: Impacts to soils would be the same as any surface disturbing activity. Overgrazing removes the vegetation that protects soils during runoff events. The production of vegetation is dependent on controllable and non-controllable conditions. Some of these conditions are the amount and distribution of precipitation, water infiltration rates, subsurface soil conditions and management practices. BLM manages for proper vegetal cover and litter. Implementing proper management practices protects the watersheds from soil loss caused by water erosion during spring snowmelt and intense rainfall.

Soil would be displaced and/or compacted on approximately two acres at each site in the construction of the trap panels, use of the access routes, and in the round-up and loading of the wild horses. The area of severe surface disturbance is normally less than 2,000 square feet. These will be the same sites as used in the 2000 Gather. Minimal surface wind and water erosion is expected on these areas during the vegetative rehabilitation period (approximately 1 to 3 years).

Soil loss and compaction would be expected to decrease in those areas near water sources where horses are forced to concentrate. Lower populations of horses would result in less hoof traffic, thereby decreasing negative impacts to soil microbiotic crusts.

Impact of No Action Alternative: It would be more detrimental to the watersheds to be continually managed at an AUM deficit, which could cause long-term erosion problems.

THREATENED AND ENDANGERED PLANTS

Affected Environment: There are currently no plant species listed as Threatened or Endangered found on the Owyhee Front. Thirty- one species listed as BLM sensitive species (BS) may occur within the areas of this removal action.

Impact of Proposed Action: The potential impacts associated with the proposed action are short term impacts from hazing horses with a helicopter on or across the habitat of one on these special status plant species. The most intense impacts will occur at trap construction sites. These areas, which will be less than one acre, will have severe soil movement due to concentrated hoof action.

Impacts of No Action Alternative Long term impacts can be associated with the number of horses within the areas under consideration. Increased horse populations along the Owyhee Front, may have negative impacts of individual plants and their habitat. Eventually, increased negative impacts would cause permanent damage to sensitive habitats.

Wild Horses

Affected Environment: Through the years a great deal of information has been gained with the completion of gathers and census flights of the HMAs in the LSRD. A summary is listed below:

1. HMA Descriptions

The Owyhee Front HMAs managed by the Owyhee Field Office includes the Black Mountain, Hardtrigger, and Sands Basin.

The Black Mountain HMA encompasses 50,823 acres with 47,385 acres of public land, 2,189 acres of State land and 1,246 private lands. The Hardtrigger HMA of 68,705 acres contains 62,004 acres of public land, 4,426 acres of State land and 2,274 acres of private land. The Sands Basin HMA has 9,444 acres of public land, 890 acres of State land and 1,389 acres of private land for a total of 11,723 acres.

The Four-Mile HMA is managed by the Four Rivers Field Office. It covers 18,084 acres between Four-Mile Creek and Big Willow Creek. The Four-Mile HMA encompasses 15,489 acres of public land, 1,471 acres of State land and 1,124 acres of private land.

2. Wild Horse Habitat

Elevations in the 3 Owyhee Front HMAs varies from approximately 2,200 ft in the northern portion to 6,700 ft at Black Mountain. Topographic features are mostly rolling hills and flat plateaus within the Snake River Plains and high, steep, rugged ridges. The wide range in elevation and accessible terrain readily accommodates seasonal migration especially in the Black Mountain and Hardtrigger HMAs. Within the Sands Basin HMA, heavy snows are uncommon, but when they do occur, horses are restricted to wind swept ridges.

Elevations in the Four-Mile HMA vary from approximately 3,600 ft to 5,100 ft. Topographic features include a steep rugged ridge that runs through the middle of the HMA down to rolling hills and flat plateaus. There is very little seasonal migration between lower and higher elevations. Heavy snows do occur which force horses to use south facing wind swept ridges.

3. Herd Characteristics

The HMAs in the Owyhee and Four Rivers Field Offices produce some of the most adoptable horses throughout all of the HMAs administered by the BLM. The wild horses are known to be of good size with good confirmation and color. This is the result of the influence of released studs into the herds before 1970. It is known that Thoroughbred and Quarter Horse studs were introduced to the herds periodically up to 1978. It is also suspected that horses bred for Cavalry re-mounts may have also influenced the herd. In addition to the typical colors of bay, brown, and black, the HMAs wild horses include many chestnuts, pintos, paints, roans, grays, duns, grullas and a few Appaloosas.

Production rates (PR) vary by year within the four HMAs. Census flights have been conducted every year as funding allowed to accumulate data regarding production in herds (Table 7).

Table 7. Production rates by year.

HMA	00	01	02
Black Mountain	36%	22%	22%
Hardtrigger	37%	29%	26%
Four-mile	28%	23%	20%
Sands Basin	26%	30%	34%

The reasons for the variance have not been researched. The illegal taking of foals when they are young and easy to catch may be one reason. Also, horses may occasionally be killed by mountain lion or coyotes. Both species may prey upon a weakened, sick or very young animal. However, neither species are believed to have impacted the herd more than minimally through the years. Due to the remoteness of the areas and the lack of personnel, patrolling the HMAs during the spring is difficult.

In general, wild horses are a long-lived species with documented foal survival rates exceeding 95%. Survivability rates collected through research efforts are as follows: the Pryor Mountain Wild Horse Range, Montana: >95%; 15 years and younger, except for foals, both sexes: 93%; Granite Range HMA, Nevada: >95%; 15 years and younger, except for male foals: 92%; and Garfield Flat HMA, Nevada: > 95%; 24 years and younger, except both foals, both sexes: 92%. Additionally, much of this research has been compiled into a population modeling program and is available for use by the BLM to model different potential changes to the population with changes in management.

4. Gather History

The sex ratio of the wild horses in the HMAs deviates slightly from a target population of 60% mares and 40% studs. Of the adult animals gathered in 1997, in Black Mountain 33% were male, in Hardtrigger 52% were male and in Sands Basin 35% were male. During the FY 2001 gather, which was the last gather completed, 177 horses were gathered with 160 animals being put up for adoption. Of these 160, 27% were weanlings, 15% old mares (> 5 years), 27% young mares, 13% old studs, 18% young studs (< 4 years). Historic removal/gather data is located in Appendix 3.

The last management gather of the Four-Mile HMA was in 1985 when 37 horses were removed from the area. During the summer of 1986, major wildfires swept through the area destroying the entire forage base within HMA. During January 1987, the remaining 16 horses were removed from the area since all horse habitat was destroyed.

During the summer of 1991, it was determined from monitoring that the vegetative resources on the HMA had recovered and was again able to support a horse herd. A gather was conducted during the fall of 1991 in the Owyhee Front HMAs. In November of 1991, nine horses, one 4-year old stud, one yearling stud and seven mares of breeding age, were re-introduced into the Four-Mile from the horses gathered. This will be the first gather since re-establishing the herd in the HMA.

5. Current Population

The estimated population for the Owyhee Front HMAs following the spring foaling period in 2002 was 230 wild horses based on the most recent census completed in August 2002. The estimated population for 2003 using PRs (Appendix 2) from 2002 will be 290. This includes animals outside the HMA boundaries, five in the Nancy Gulch Allotment and six in the Diamond Basin Allotment. In an emergency gather, fifteen horses were taken off the Sands Basin HMA in October of 2002. This was in connection with the Trimby Creek Fire Rehab Project. Wildfire burned 30% of the HMA and horses were removed to protect the habitat and to provide more forage for remaining horses.

The population for the Four-mile HMA in 2002 was 66 animals and the estimated population for 2003 will be 79 horses. This includes 5 horses outside the north boundary of the HMA.

Appendix 2 illustrates the 2002 HMA census statistics and estimates for the 2003 population. Historic census data is located in Appendix 3.

6. Appropriate Management Level (AML)

The AML for the Owyhee Front HMAs were established by the 1999 Owyhee RMP. The AML for the Four-mile HMA was established in the 2001 Big Willow Environmental Assessment. The AMLs were established based on monitoring data and following a thorough public review. Dietary overlap between wild horses and livestock approaches 1:1. Therefore, AUMs were allocated to wild horses on a proportional basis with other uses of the allotments (wildlife, livestock) using the best available utilization data collected within the allotments. Table 7 displays the established AML ranges and AUM allocations as shown in the Owyhee RMP.

Table 8. Wild Horse Forage Allocations

Herd Management Area	Allocation (AUM)	AML Range
Black Mountain	540	30 - 60
Four-mile	740	37 - 60
Hardtrigger	1,176	66 - 130
Sands Basin	588	33 - 64

Resource degradation will occur when wild horse population levels exceed the upper range of AML. Periodic gathers would be required to maintain the wild horse population at the maximum AML if a range were not established. This would require either removing the annual increase in the population each year or gathering less frequently and removing larger numbers.

The current national wild horse and burro gather policy (IM No. 2002-095), emphasizes achieving a four year gather cycle for HMAs. For these reason, the AMLs were established as a range which will allow for a four year gather cycle and maintenance of a thriving natural ecological balance.

7. HMA Objectives

- Manage the populations in the Black Mountain, Hardtrigger, Four-Mile and Sands Basin HMAs to preserve and enhance physical and biological characteristics that are of historical significance to the herd: These traits include:
 - Traits of the founding horses of the herd which include Thoroughbred and Quarter Horse traits, large to medium size with good confirmation.
 - Historic colors include bay, brown, black, chestnuts, pintos, paints, roans, grays, duns and grullos.
- Manage the wild horse herds for short and long-term increases and enhance adoptability by ensuring that wild horses displaying desirable traits are preserved in the herd thus providing a reproductive base to increase highly adoptable horses.
- Identify and preserve historic traits and characteristics within the HMAs. These have proven to be highly desirable by the adoption participants. Also, to increase the long-term availability of animals bearing these features.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive and genetic health.

- Preserve and maintain a healthy and viable wild horse population that will survive and be successful within the HMA during poor years when elements of the habitat are limiting due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences to the herd.
- To manage the wild horse herds as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.

8. HMA Genetic Diversity and Viability

After the 2000 gather, blood samples were taken from 17 horses from the Owyhee Front HMAs. Blood will be drawn during the next gather from all four HMAs during preparation operations. This would create baseline data to establish the current level of genetic diversity for individual HMAs.

The following summarizes current knowledge of genetic diversity as it pertains to the LSRD HMAs.

- Smaller, isolated populations (<200 total census size) are particularly vulnerable when the number of animals participating in breeding drops below a minimum needed level.
- It is possible that small populations will be unable to maintain self-sustaining reproductive ability over the long term, unless there is a natural or management-induced influx of genetic information from neighboring herds. An exchange of only 2-3 breeding age animals per generation would maintain the genetic resources in small populations of about 100 animals, thus obviating the need for larger populations in all cases. Horses from HMAs in Oregon, Wyoming and Nevada have been released into the isolated HMAs within the last five years. These were horses that were turned back to the BLM from adopters.
- There is little imminent risk of inbreeding since most wild horse herds sampled to date have large amounts of genetic heterozygosity with genetic resources slowly lost over periods of many generations. Wild horses are long-lived with long generation intervals, and there is little imminent risk of population extinction.
- Genetic effective population (N_e) is a difficult number to calculate for wild horses, since the calculation is complicated by many factors inherent in wild horse herds. No single universally acceptable formula exists to deal with these complexities, and no standard goal for N_e or loss of genetic resources currently exists for wild horse herds. A goal of $N_e=50$ is currently being applied as an estimate for N_e in wild horse herds.
- Current efforts with wild horses suggest management should allow for a 90% probability of maintaining at least 90% of the existing population diversity over the next 200 years.

The following summarizes what is known about the LSRD HMAs as it pertains to genetic diversity:

- The current estimated population for the four HMAs is 369 wild horses using 2002 PRs.
- The Sands Basin and Four-mile HMAs are isolated from other herds.
- The Black Mountain and Hardtrigger HMAs have a common border.
- Naturally occurring ingress and egress occurs between the Black Mountain and Hardtrigger.
- Presently, only a small amount of genetic data is known about these herds. Additional genetic data will be analyzed from this event and will be gathered and re-tested for herd diversity during future gathers.
- Current knowledge for the application of these concepts and how they will affect management is limited at this time. As additional research is completed, and knowledge becomes available, it will be applied to the HMAs managed by the LSRD.

Impacts of Proposed Action:

Impacts to wild horses under the Proposed Action take the form of direct and indirect impacts and may occur on either the individual or the population as a whole. Direct individual impacts are those impacts, which occur to individual horses and are immediately associated with implementation of the Proposed Action. These impacts include: handling stress associated with the roundup, capture, sorting, animal handling, and transportation of the animals. All phases of the capture, holding, adoption preparation and transport will be carried out according to Bureau policy with the intent of conducting a safe, humane operation. If conditions warrant, or if animal health and welfare is in jeopardy at any time, gather operations will be delayed, or halted.

Indirect individual impacts are those impacts, which occur to individual horses after the initial stress event. Indirect individual impacts may include spontaneous abortions in mares, and increased social displacement and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs with most older studs following sorting and release into the stud pen and usually lasts less than three minutes and ends when one stud retreats. Traumatic injuries do not ensue in most cases, however, they do occur. These injuries typically involve a bite and/or kicking with bruises, which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual. Spontaneous abortion events are very rare among mares following captures.

Disturbance of wild horses by activities associated with any gather are unavoidable. There is always the possibility that wild horses will be injured, or killed during any phase of the removal operation. Young foals could become separated from their mothers while being driven by the helicopter to trap locations. If pregnant mares are in the third trimester of pregnancy, they could abort as a result of the gather activities.

Well-constructed traps, safety-conscious corral construction at the holding facility, well-maintained equipment, and additional pens for animals determined best kept separate from other animals will decrease stress, and the potential for injury and illness. If necessary, the traps and holding facility will be regularly watered to minimize dusty conditions. Experienced BLM personnel will be on-site during all phases of the operation. A veterinarian will be either on-site at all times during the operation. Observers will be asked to remain some distance from the animals during all phases of capture, holding and preparation to minimize the level of activity. Wild horses will be handled only to the extent necessary. Animals identified for relocation will be released with minimal handling in an expedient time frame.

Population wide direct impacts are immediate effects which would occur during or immediately following implementation of the Proposed Action. They include the displacement of bands during capture and the associated re-dispersal which occurs following release, the modification of herd demographics (age and sex ratios), the temporary separation of members of individual bands of horses, and the re-establishment of bands following releases, and the removal of animals from the population. With exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release except a heightened awareness of human presence.

The effect of removal of horses from the population would not be expected to have impact on herd dynamics or population variables; as long as the selection criteria for the removal ensured a “typical” population structure was maintained. Obvious potential impacts on horse herds and populations, from exercising poor selection criteria not based on herd dynamics, includes modification of age or sex ratios to favor a particular class of animal.

Effects resulting from successive removals causing shifts in sex ratios away from normal ranges are fairly self evident. If a selection criterion leaves more studs than mares, band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase. On the other hand, a selection criterion which leaves more mares than studs would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, lengthening of the time after birth when individual mares begin actively reproducing, and larger band sizes.

Effects resulting from successive removals causing shifts in age dynamics away from normal ranges are likewise, fairly obvious. Herd shifts favoring older age horses (over 15 years) have been observed resulting in a favoring of studs over mares in some herds. Explanations include sex-based differences in reproductive stress (relative demand for individual contributions to reproduction) and biological stress (timing the most physically demanding period of the annual cycle).

The effects of successive removals on populations causing shifts in herd demographics favoring younger horses (under 15 years) would also have direct consequences on the population. These impacts are not thought of typically as adverse to a population. They include: development of a population which would be expected to be more biologically fit, more reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events.

The Proposed Action would mitigate the potential adverse impacts on wild horse populations by establishing a procedure for determining what selective removal criteria is warranted for the herd. This more flexible procedure of removing horses under 6 years and over 10 years old, would allow for the correction of any existing discrepancies in herd dynamics which could predispose a population to increased chances for catastrophic impacts. The Proposed Action would establish a standard for selection, which would minimize the possibility for developing negative age or sex based selection effects in the population in the future.

Immunocontraception techniques will be applied to all mares being returned to the HMAs. Research on wild free-roaming horse herds in Nevada has been conducted on the Antelope/Antelope Valley HMAs (1992, Ely), on the Nevada Wild Horse Range (1996), the Kammass HMA /Antelope HA (1998, Winnemucca), and the Antelope/Antelope Valley, Sand Springs, and Monte Cristo HMAs (1998, Ely) utilizing PZP injections. The 1992 Antelope/Antelope Valley HMAs research found that reproductive success was 4.5% using two injections, 20.0% using one injection plus microspheres, and 28.6% using one injection with no microspheres. Reproductive success for mares treated with a placebo was 55.0%. Success of untreated mares was 53.9%, which was significantly greater than treated mares. The following year, without further treatment, reproductive success was 44.0% for mares treated with two injections, and 54.5% for untreated mares.

Wild horse mares treated with PZP will, at a minimum, be freeze-marked on the hip for identification purposes. The Specialists will assure that these animals do not enter the adoption market for three years following treatment. A field data sheet will be forwarded to the field from NPO prior to treatment. A form will be used to record all pertinent data relating to identification of the mare (including photo when possible), date of treatment, type of treatment (1yr, 2yr- and Adjuvant used) Herd Management Area (HMA), etc.

A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, the disposition of any unused PZP, and the number of treated mares by HMA, FO and State along with the freeze-mark applied by HMA. In the vast majority of cases, the released mares will never be gathered sooner than the mandatory three- year holding period. In those rare instances when, due to unforeseen circumstances, a treated mare(s) are removed from an HMA they will be maintain either in a BLM facility or a contracted Long Term Holding Facility until the expiration of the three- year holding period. In the event that it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three-year holding period, the animal may be placed in the adoption system.

Results of fertility control research conducted to date indicate that PZP immunocontraception is highly effective, and that the reproductive success of the mares returns to normal following fertility control. The efficacy of the two year vaccine is 94% in year 1 and 82 % year two. In the Clan Alpine HMA (data just received) in year 3, the fertility rate in treated mares was 32% and in untreated mares, 51 %. This was based on live foals observed in an aerial census. These data indicate some residual fertility control effect into year 3. There would be no significant increase in stress above that normally associated with the processing and sorting of animals after a gather.

Direct impacts of the proposed action would decrease foal production two or three years, but would not negatively impact the wild horse population in long-term management. Population wide indirect impacts would not appear immediately as a tangible effect and are more difficult to quantify. These impacts are associated primarily with the use of fertility control drugs and involve reductions in short term fecundity of the mares and their contributions to the gene pool, especially in these small populations. Monitoring will establish the overall impacts of this control in these populations.

Impact of No Action Alternative:

The no action alternative would equate to the BLM allowing the Black Mountain, Hardtrigger, Four-mile and Sands Basin HMAs to increase in size without scheduled or planned removal actions. The wild horse herds would be expected to continue to increase at approximately 20% to 25% annually in the near and mid-term. As numbers increase over time, spatial overlap and the consequent competition for the critical elements of water, food and cover would increase. In the long term, the no action alternative would result in intense, irreversible degradation of the wild horse habitat. The long-term impacts to the wild horse ecosystem as a result of the no action alternative would directly and negatively affect the wild horse herds as a result of intense and irreversible deterioration of the wild horse habitat.

Grazing Management

Affected Environment: The rangeland management program in HMAs includes seven grazing allotments currently under deferred or rest rotation grazing systems with use periods of spring, summer, fall and winter. Water for livestock and wild horses is mainly available from springs and reservoirs during late winter to early summer. Throughout the summer, spring flow and reservoir storage diminish. By the late part of the grazing season most water resources become dry, thus causing some excessive use around permanent watering areas.

1. **Vegetation Types:** The most common vegetation community in the Owyhee Front HMAs is Wyoming big sagebrush with bluebunch wheatgrass, Thurber needlegrass and an assortment of annuals. Other communities include low sagebrush, shadscale and four-wing saltbush with bluebunch wheatgrass, Idaho fescue, and Basin wildrye. In the southern portions of the areas are communities of Basin big sagebrush and mountain big sagebrush with varying understories of fescue, wheatgrass or bluegrass species. The upland vegetative communities vary greatly in ecological status. Existing species composition place most sites in early to mid seral stage.

Vegetation composition of the Four-mile HMA was dramatically changed during the extensive wildfire in 1986 when approximately 14,000 acres in the HMA burned. Most of the shrub component, which makes up the climax vegetation of the area, was destroyed. The shrub component was dominated by Wyoming big sagebrush with stands of antelope bitterbrush, rabbitbrush, and mountain shrub species including chokecherry, bittercherry, snowberry, rose and some hawthorn. After the fire, a major rehabilitation effort was conducted. Bitterbrush and sagebrush seedlings were planted in an effort to re-establish a portion of the lost shrub component. Natural shrub regeneration also occurred from some burned plants. Approximately 10,000 acres of grasses and forbs were aerially seeded to reduce erosion potential in the area. Overall, the area is dominated by medusa-head wild rye in the lower elevations and bluebunch wheatgrass and squirrel tail bunchgrass in the higher elevations.

2. **Livestock Operations:** Allotments in the Black Mountain HMA include East Reynolds (0651), Rabbit Cr. /Peters Gulch (0517), and Hardtrigger (0516) – Hemingway Butte Pasture. Four-mile HMA is comprised of the A-L Cattle Company AMP (005). Allotments of the Hardtrigger HMA are Reynolds Creek (0508), Rats Nest (0522), Shares Basin (0556) and Hardtrigger (0516) – excluding the Hemingway Butte Pasture. The Sands Basin HMA is found in the Sands Basin Allotment (0521).

A. Black Mountain HMA

Allotment - #	# pastures in HMA	Avg. Actual Use for allotment (AUM)	Active Preference
East Reynolds - 0651	3	1,577	1,981
Rabbit Cr./Peters Gulch - 0517	5	2,108	2,859
Hardtrigger – 0516**	1	1,261	2,044

**Permitted AUMS for entire Hardtrigger Allotment.

B. Four-mile HMA

This HMA is managed under the A-L Cattle Company allotment management plan (AMP). Two pastures in this AMP make up the entire HMA, the George Way Pasture and the Joe's, Hollow Pasture. The actual use is approximately 924 AUMs in the George Way Pasture and 518 AUMs in the Joe's Hollow Pasture.

C. Hardtrigger HMA

Allotment - #	# pastures in HMA	Avg. Actual Use for allotment (AUM)	Active Preference
Rats Nest – 0522	1	298	557
Shares Basin - 0556	1	1,486	1,621
Hardtrigger – 0516**	3	1,261	2,044
Reynolds Creek - 0508	5	3,380	3,875

**Permitted AUMS for entire Hardtrigger Allotment.

D. Sands Basin HMA

This HMA is managed as the Sands Basin Allotment. This allotment has three pastures within the boundaries of the HMA, Barrel Springs, Bridge Creek and the Seeding. After the Trimby Creek Wildfire, livestock and wild horse use was reduced to diminish the impacts associated with grazing. Normal actual use has been 984 AUMs with an active preference of 999 AUMs.

Impacts of Proposed Action and Alternatives:

In general, wild horses population reductions should cause an increase in desirable vegetation. Range sites within the affected area would show an increase in the amount of desirable individual species, production, cover and site potential.

Cheatgrass (*Bromus tectorum*) will continue to occur in virtually all key areas. To avoid increases in cheatgrass and other noxious weeds, the land resource must be managed to maximize the vigor and productivity of desirable native plant species so that there is no niche (opportunity) for the invasion or proliferation of cheatgrass. This is difficult with any level of yearlong horse use.

Providing for the plant growth requirements of preferred perennial species is attainable with forage allocation for wild horses that is commensurate with the total forage allocation. The proposed action would allow present livestock use at allocated levels to continue as authorized by the land use plans and as prescribed in the Standards and Guides.

Impacts of the No Action Alternative: Periodic removal of wild horses is presently the only management tool being utilized with respect to managing wild horse numbers and, therefore, their stocking rate. Utilization rates would increase cumulatively between horses and cattle, further degrading the forage resource and deterioration of the habitat. As the productivity and composition of desirable forage species decreases an increase in the invasion of undesirable species would occur. This decline would continue to the point that there would be both insufficient plant cover for range site protection and insufficient forage for all rangeland users.

Wildlife/Fisheries

Within the project area, numerous species of wildlife occur. No threatened or endangered or animals are known to exist at or around trap sites; however, several special status species may occur in the area. These include redband trout, sage grouse, prairie falcon, ferruginous hawk, calliope hummingbird, Lewis' woodpecker, Williamson's sapsucker, willow flycatcher, loggerhead shrike, pygmy rabbit, Piute ground squirrel, Brewers sparrow, sage sparrow, California bighorn sheep, kit fox, Mojave black-collared lizard, western ground snake, and long-nosed snake, common garter snake, Woodhouse's toad, and western toad.

Other wildlife present within the herd areas include pronghorn antelope (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), mountain lions (*Felis concolor*), coyotes (*Canis latrans*), bobcats (*Lynx rufus*), greater sage grouse (*Centrocercus urophasianus*), chukar partridge (*Alectoris chukar*), gray partridge (*Perdix perdix*), California Quail (*Lophortyx californicus*) and a large diversity of raptors and other nongame birds, small mammals, reptiles and amphibians. The entire Four-mile HMA is considered a crucial mule deer and elk winter range and portions of the Hardtrigger and Black Mountain HMAs are crucial pronghorn winter habitat. Both riparian and sagebrush steppe habitats support a large diversity of dependant special status and other wildlife species.

The redband trout is designated as a BLM sensitive species and is found in most streams in the Owyhee Front. Populations have been documented in portions of seven of the perennial streams located in the HMAs. These include Jump Creek, Salmon Creek, Macks Creek, Cottle Creek, and Reynolds Creek. It is also found in the lower stretches of Four-mile Creek. Four-mile Creek flows into Big Willow Creek a larger perennial stream. Other species such as speckled dace and bridge-lipped sucker are also found in these streams.

Sage grouse is another BLM sensitive species and is found in all the HMAs. The major influence wild horses have on sage grouse habitat is their contribution in reducing herbaceous ground cover in nesting and brood-rearing habitats. Horses make consistent use of the same mountain shrub and sagebrush communities which comprise nesting and/or brood-rearing habitats. Collective forage use by livestock, horses, and big game on grouse nesting and brood ranges, reduces the availability of herbaceous plants used directly as forage, or indirectly as invertebrate substrate. It also impacts the efficacy of herbaceous cover (i.e. grasses and forbs) as thermal cover and predator concealment during the nesting and early-brood rearing period.

In general, grazing use that reserves at least 50% of the annual herbaceous production through mid-September is considered compatible with sage grouse cover and forage management objectives.

Impacts of Proposed Action:

Under the proposed action, reducing the overall grazing level through horse removal would provide both immediate and longer-term habitat improvement. The effects of removal on sage grouse habitat would reduce the incremental and long term reductions in the rate, persistence, and quality of herbaceous and woody plants. Although horses compete with big game and livestock for forage resources, authorized forage use within the HMA has been integrated into a multiple use context.

Riparian habitats attract all summer/fall grazers and these areas are frequently subjected to heavy use of herbaceous growth. A decline in the availability of preferred forb forage may be caused by both grazing use and a decline in conditions amenable to soil moisture retention. Although emerging herbaceous growth is likely the primary attraction, horses wander extensively through these areas during the growing season, stripping leaves from leaders of resprouting shrubs. This form of use normally causes the leaders to die-back, reducing the availability of dormant woody forage for subsequent winter deer use. It also reduces overall plant vigor and further growing season production, as well as causing a long-term shift in community structure and composition.

Although non-wildlife grazing use, including horses, can be managed in a manner that enhances or maintains important forage attributes of seasonal habitat. The cumulative influence of inappropriate grazing use (timing or intensity) that exceeds range capacity and depresses the vigor, density, persistence and diversity of vegetation is counterproductive to all species.

Impacts of No Action Alternative: Wildlife populations in the HMAs would be forced to compete more for limited water and forage, which would most likely alter use patterns. Habitat degradation would increase and a natural ecological balance would be lost. A major decrease in wildlife populations and wildlife use of habitat in HMAs will occur.

Chapter 4

Cumulative Impacts

Cumulative impacts are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Proposed Action

The potential for cumulative impact on most of the identified resources other than wild horses is minimal. With fewer horses, there would be less competition for forage and limited water. By removing horses with the selective removal policy, changes would be made in the age structure and sex ratio within the bands with older, less desirable horses removed. In addition, habitat quality would improve with the reduction of animals utilizing the forage base and limited water resources. The administration of the immunocontraception vaccine PZP would allow the LSRD to adhere to policy (IM No. 2002-095) requiring a four-year gather cycle. By reducing the impacts of a large herd size, the habitat would maintain a thriving, ecological balance, especially in the smaller HMAs, thereby, complying with the Wild Free-Roaming Horse and Burro Act of 1971.

Alternative 3 - No Action

The horses would continue to over populate the HMAs until numbers would increase beyond the carrying capacity of the range. Ultimately, range condition would deteriorate, watershed cover would be greatly reduced, water quality would be diminish, soil erosion would increase, wildlife use patterns and numbers would be altered, and domestic livestock on the area would be eliminated.

Chapter 5

Consultation and Coordination

A public hearing will be held prior to the gather to discuss the use of helicopters and motorized vehicles to capture wild horses. During these meetings, the public is given the opportunity to present new information and to voice any concerns regarding the use of these methods to capture the horses.

Persons/Agencies Consulted:

Bob Amidon	Ted Blackstock
Richard Brandau	Chipmunk Grazing Assoc.
Barbra Flores	Mike and Judy Henderson
Tom Hook	Elias Jaca
Calvin Johnston	Junayo Ranch Ltd.
Sabrina Leonard	Andrea Lococo
Jon Marvel	Tony and Brenda Richards
Kenneth Sevy	Karen Sussman
Bill Watterson	

Chapter 6

List of Reviewers

Lynn Wessman	Ecologist
Judi Zuckert	Recreation Planner
Bill Hagdorn	Recreation Planner
Zig Napkora	Hydrologist
Lois Palmgren	Cultural Resources
Dean Shaw	Cultural Resources
Jon Haupt	Rangeland Management Specialist
Jake Vialpando	Rangeland Management Specialist
Ray Pease	Rangeland Management Specialist
Mike Mathis	Wildlife Biologist
Tim Carrigan	Wildlife Biologist
Valerie Geerston	Botanist

Prepared by Sam Mattise, Wild Horse Specialist

Attachment A - Trap Site Locations

The following areas have been identified as trap site locations and clearances have been completed for the Owyhee Front Gather. Sites for gathering the Four-mile herd will be identified at a later date and clearances will be completed before traps are built.

1. T1N.,R5W., Sec.19, SWSW
2. T1S.,R3W., Sec 5, NESW
3. T1N.,R3W., Sec. 32, NWNE
4. T1N., R4W., Sec. 15, NWSE
5. T2S.,R3W., Sec. 35, SENE

Attachment B - Standard Operating Procedures

1. Methods for Humane Capture Wild Horses or Burros

Helicopter Removals with or without a Contract

The helicopter drive trapping method employed for capture operations requires that horses be herded to a trap of portable panels and in extremely rare occasions to ropers who, after roping the animal, will bring it to the trap. Gathering would be conducted by using agency personnel or contractors experienced in the humane capture and handling of wild horses. The same rules apply whether a contractor or BLM personnel are used. The following stipulations and procedures will be followed during the contract period to ensure the welfare, safety and humane treatment of the wild horses in accordance with the provisions of 43 CFR 4700 and the Great Basin Wild Horse Gathers Capture contract

Capture Methods That May Be Used in the Performance of a Helicopter Gather

Helicopter Drive Trapping

- This capture method will involve driving horses into a pre-constructed trap using a helicopter. The trap is constructed of portable steel panels consisting of round pipe. Wings are constructed off the ends of the panel trap to aid in funneling horses into the trap. The wings are constructed of natural jute, (or similar netting which will not injure a horse), which is hung on long steel posts. This sort of wing forms a very effective visual barrier to the horses that they typically will not run through. When the trap is ready for use, a helicopter will start moving one band of horses at a time toward the trap and into the wings.
- In heavily wooded areas, it may be necessary to use wranglers in support of the helicopter to move the horses. The helicopter will act more as a spotter for the ground crew in this situation.
- The contractor shall attempt to keep bands intact except where animal health and safety become considerations, which would prevent such procedures. The contractor shall ensure that foals shall not be left behind.
- At least one saddle horse should be immediately available at the trap site to perform roping if necessary. Roping shall be done as determined by the Contracting Officer's Representative (COR) or Project Inspector (PI). Under no circumstances shall animals be tied down for more than one hour.
- Domestic saddle horses may also be used to assist the helicopter pilot (on the ground) during the gather operation, by having the domestic horse act as a pilot (or "Judas") horse on the ground, leading the wild horses into the trap site. Individual ground hazers and individuals on horseback may also be used to assist in the gather.

Helicopter Assisted Roping

- Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. Under no circumstances shall horses or burros be tied down for more than one hour.
- Roping shall be performed in such a manner that bands will remain together. Foals shall not be left behind.

2. Stipulations for Portable Corral Traps/Exclosures

Capture traps would be constructed in a fashion to minimize the potential for injury to wild horses or burros and BLM personnel. Gates would be wired open at all unmanned trap sites, and would be left closed only when needed to hold horses or burros inside. Trapped horses or burros would not be held inside the traps for a period exceeding 10 hours, unless provided with feed (weed free hay) and water.

The Idaho Department of Fish and Game will be notified as soon as possible if any wildlife became injured during capture operations. Wildlife caught inside traps would be released immediately.

4. Contract Helicopter, Pilot and Communications

The contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.

When refueling, the helicopter shall remain a distance of at least 1,000 feet or more from animals, vehicles (other than fuel truck), and personnel not involved in refueling.

The COR/PI shall have the means to communicate with the contractor's pilot at all times. If communications cannot be established, the Government will take steps as necessary to protect the welfare of the animals. The frequency(ies) used for this contract will be assigned by the COR/PI when the radio is used. The contractor shall obtain the necessary FCC licenses for the radio system.

The proper operation, service and maintenance of all contractor furnished helicopters are the responsibility of the contractor. The BLM reserves the right to remove from service pilots and helicopters which, in the opinion of the Contracting Officer or COR/PI, violate contract and FAA rules, are unsafe or otherwise unsatisfactory. In this event, the contractor will be notified in writing to furnish replacement pilots or helicopters within 48 hours of notification. The Contracting Officer or his/her representative must approve all such replacements in advance of operation. All incidents/accidents occurring during the performance of any delivery order shall be immediately reported to the COR.

5. Non-Contract Helicopter Operations

An Aircraft Safety Plan and flight hazard analysis will be appropriately approved and filed and copies distributed to the necessary individuals prior to commencing the removal operation. Daily flight plans will also be filed. If a BLM contract helicopter is used, all BLM, Aircraft Safety and Operations standards will be adhered to.

There will be daily briefings with the helicopter pilot, Authorized Officer and all personnel involved in the day's operation. The purpose of this meeting is to discuss in detail all information gathered during the familiarization flight such as hazards, location of horses, potential problems, etc. Discuss any safety hazards anticipated for the coming day's operation or any safety problems observed by the Authorized Officer or anyone else, outline the plan of action, delineate course of actions, specifically position the hazers and their responsibilities, logistics, and timing. After each flight, removal personnel will discuss any problems and suggest solutions. This may be accomplished over the radio or on the ground as the need dictates.

A flight operations plan will be filed with the Boise Dispatch Center. This plan will describe the area to be flown and the expected time frames of flight operations. A weather forecast will be acquired from the dispatcher. There will be no flights on days of high or gusty, erratic winds or days with poor visibility. Two-way radio communication between the helicopter and the ground crew will be maintained at all times during the operation.

An operation or contractor's log will be maintained for all phases of the operation. The log will be as detailed as possible and will include names, dates, places and other pertinent information, as well as, observations of personnel involved.

6. Animal Handling and Care

Prior to any gathering operations, the COR/PI will provide for a pre-capture evaluation of existing conditions in the gather areas. The evaluation will include animal condition, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that capture efforts necessitate the services of a veterinarian, one would be obtained before capture would proceed.

The contractor will be apprised of the conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

The Authorize Officer and pilot may take a familiarization flight identifying all natural hazards (rims, canyons, winds) and man-made hazards in the area so that helicopter flight crew, ground personnel, and wild horse safety will be maximized. Aerial hazards will be recorded on the project map.

No fence modifications will be made without authorization from the Authorized Officer. The contractor shall be responsible for restoration of any fence modification, which has been made. If the route the contractor proposes to herd animals passes through a fence, opening should be large enough to allow free and safe passage. Fence material shall be rolled up and fence posts will be removed or sufficiently marked to ensure safety of the animals. The standing fence on each side of the gap will be well-flagged or covered with jute or like material.

Wings shall not be constructed out of materials injurious to animals and must be approved by the Authorized Officer.

It is the responsibility of the contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR.

Branded or privately owned animals captured during gather operations will be handled in accordance with state estray laws and existing BLM policy.

Capture methods will be identified prior to issuance of delivery orders. Regardless of which methods are selected, all capture activities shall incorporate the following:

Trap Site Selection

- The Authorized Officer will make a careful determination of a boundary line to serve as an outer limit within which horses will be herded to a selected trap site. The Authorized Officer will insure that the pilot is fully aware of all natural and man made barriers which might restrict free movement of horses. Topography, distance, and current condition of the horses are factors that will be considered to set limits to minimize stress on horses.
- Gather operations will be monitored and restricted (if necessary) to assure the body condition of the horses is compatible with the distances and the terrain over which they must travel. Pregnant mares, mares with small colts, and other horses would be allowed to drop out of bands which are being gathered if required to protect the safety and health of the animals. All trap and holding facility locations must be approved by the Authorized Officer prior to construction. The situation may require moving of the trap. All traps and holding facilities not located on public land must have prior written approval of the landowner.
- Trap sites will be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites will be located on or near existing roads. Additional trap sites may be required, as determined by the Authorized Officer, to relieve stress to the animals caused by specific conditions at the time of the gather (i.e. dust, rocky terrain, temperatures, etc.).

Trap/Facility Requirements

- All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:
 - Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level.
 - All traps and holding facilities shall be oval or round in design. All loading chute sides shall be fully covered with plywood (without holes) or like material. The loading chute shall also be a minimum of 6 feet high.
 - All runways shall be of sufficient length and height to ensure animal and wrangler safety. and may be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses.
 - If a government furnished portable chute is used to restrain, age, or to provide additional care for animals, it shall be placed in the runway in a manner as instructed by or in concurrence with the Authorized Officer.
 - All crowding pens including the gates leading to the runways may, if necessary to prevent injuries from escape attempts, be covered with a material which prevents the animals from seeing out (plywood, burlap, snow fence etc.) and should be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses.
- In holding facilities, alternate pens are necessary to separate mares or jennies with small foals, animals which will be released, sick and injured animals, and estrays from the other animals. They are also necessary to facilitate sorting as to age, number, size, temperament, sex, and condition. They will be constructed to minimize injury due to fighting and trampling. In some cases, the Government will require that animals be restrained for determining an animal's age or for other purposes. In these instances, the Government will provide a portable restraining chute. Either segregation or temporary marking and later segregation will be at the discretion of the COR.
- If animals are held in the traps and/or holding facilities, a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day will be supplied. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day.
- Separate water troughs shall be provided at each pen where animals are being held. Water troughs shall be constructed of such material (e.g. rubber, rubber over metal) so as to avoid injury to animals.
- When dust conditions occur within or adjacent to the trap or holding facility, the contractor shall be required to wet down the ground with water.

7. Treatment of Injured or Sick; Disposition of Terminal Animals

The contractor shall restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. Destruction shall be done by the most humane method available. Authority for humane destruction of wild horses (or burros) is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy as expressed IM 99-154. Any captured horses that are found to have the following conditions may be humanely destroyed:

- a. The animal shows a hopeless prognosis for life.
- b. Suffers from a chronic or incurable disease, or serious congenital defect.
- c. Requires continuous care for the relief of pain and suffering.
- d. Not capable of maintaining a body condition rating of one in a normal rangeland environment.

The Authorized Officer will determine if injured animals must be destroyed and provide for destruction of such animals. The contractor may be required to dispose of the carcasses as directed by the Authorized Officer.

The carcasses of the animals that die or must be destroyed as a result of any infectious, contagious, or parasitic disease will be disposed of by burial to a depth of at least 3 feet.

The carcasses of the animals that must be destroyed as a result of age, injury, lameness, or noncontagious disease or illness will be disposed of by removing them from the capture site or holding corral and placing them in an inconspicuous location to minimize visual impacts. Carcasses will not be placed in drainages regardless of drainage size or downstream destination.

8. Motorized Equipment

All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The contractor shall provide the Authorized Officer with a current safety inspection (less than one year old) of all tractor/stock trailers used to transport animals to final destination.

Vehicles shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.

Only stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities. Only stock trailers, or single deck trucks shall be used to haul animals from temporary holding facilities to final destination(s). Sides or stock racks of transporting vehicles shall be a minimum height of 6 feet 6 inches from the vehicle floor. Single deck trucks with trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. The compartments shall be of equal size plus or minus 10 percent. Trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate animals. The compartments shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have at the minimum a 5 foot wide swinging gate. The use of double deck trailers is unacceptable and will not be allowed.

All vehicles used to transport animals to the final destination(s) shall be equipped with at least one (1) door at the rear end of the vehicle, which is capable of sliding either horizontally or vertically. The rear door must be capable of opening the full width of the trailer. All panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of the trailer must be strong enough, so that the animals cannot push their hooves through the sides. Final approval of vehicles to transport animals shall be held by the Authorized Officer.

Floors of vehicles, trailers, and the loading chute shall be covered and maintained with materials sufficient to prevent the animals from slipping.

Animals to be loaded and transported in any vehicle or trailer shall be as directed by the Authorized Officer and may include limitations on numbers according to age, size, sex, temperament, and animal condition. The minimum square footage per animal is as follows:

- 11 square feet/adult horse (1.4 linear feet in an 8 foot wide trailer)
- 8 square feet/adult burro (1.0 linear foot in an 8 foot wide trailer)
- 6 square feet/horse foal (0.75 linear feet in an 8 foot trailer)
- 4 square feet/burro foal (0.50 linear feet in an 8 foot wide trailer)

The Authorized Officer shall consider the condition of the animals, weather conditions, type of vehicles, distance to be transported, or other factors when planning for the movement of captured animals. The Authorized Officer shall provide for any brand and/or inspection services required for the captured animals.

Communication lines will be established with personnel involved in off-loading the animals to receive feedback on how the animals arrive (condition/injury etc.). Should problems arise, gathering methods, shipping methods and/or separation of the animals will be changed in an attempt to alleviate the problems.

If the Authorized Officer determines that dust conditions are such that animals could be endangered during transportation, the contractor will be instructed to adjust speed and/or use alternate routes.

Periodic checks by the Authorized Officer will be made as animals are transported along dirt roads. If speed restrictions are in effect the Authorized Officer will at times follow and/or time trips to ensure compliance.

9. Special Stipulations.

Private landowners or the proper administering agency(s) would be contacted and authorization obtained prior to setting up traps on any lands, which are not administered by BLM. Wherever possible, traps would be constructed in such a manner as to not block vehicular access on existing roads.

If possible, traps would be constructed so that no riparian vegetation is contained within them. Impacts to riparian vegetation and/or running water is located within a trap (and available to horses) would be mitigated by removing horses from the trap immediately upon capture. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.

Gathering would be conducted when soils are dry or frozen and conditions are optimal for safety and protection of the horses and wranglers. Whenever possible, scheduling of gathering activities will minimize impacts with big game hunting seasons.

Gathers would not be conducted during peak foaling season which for this gather is March 1 through June 30, to reduce the chance of injury or stress to pregnant mares or mares with young foals.

The helicopter would avoid eagles and other raptors, and would not be flown repeatedly over any identified active raptor nests. No unnecessary flying would occur over big game on their winter ranges or active fawning/calving grounds during the period of use.

Standard operating procedures in the siting and construction of traps will avoid adverse impacts from trap siting, construction, or operation to wildlife species, including threatened, endangered, or sensitive species.

10. Herd Health and Viability Data Collection

The following information will be collected from each animal captured: age, sex, color, overall health, pregnancy or nursing status. In addition, blood or hair samples may be collected from individuals within the herd.

Population Management Plan/Selective Addition or Removal

- Blood samples may be taken for the purposes of furthering genetic ancestry studies and incorporation into the Population Management Plans, which will be developed for each HMA/complex.
- On occasion, it may be necessary to enhance and maintain genetic diversity, and a few animals with compatible characteristics may be introduced from other HMAs. Introduced animals will be taken from areas with similar habitat.

11. Public Participation

Prior to conducting a gather, a communications plan or similar document summarizing the procedures to follow when media or interested public request information or viewing opportunities during the gather should be prepared. The public must adhere to guidance from the agency representative and viewing must be prearranged.

12. Safety

Safety of BLM employees, contractors, members of the public, and the wild horses will be given primary consideration. The following safety measures will be used by the Authorized Officer, and all others involved in the operation as the basis for evaluating safety performance and for safety discussions during the daily briefings:

A briefing between all parties involved in the gather will be conducted each morning.

All BLM personnel, contractors and volunteers will wear protective clothing suitable for work of this nature. BLM will alert observers of the requirement to dress properly. BLM will assure that members of the public are in safe observation areas.

BLM personnel or the contract veterinarian will accomplish the handling of hazardous, or potentially hazardous materials such as liquid nitrogen and vaccination needles in a safe and conscientious manner.

The vaccination needles would be disposed of by the contract veterinarian. The liquid nitrogen would be handled only by experienced BLM personnel. The hazmat coordinator will be notified in the case of nitrogen spillage.

13. Responsibility and Lines of Communication

The Contracting Officer's Representative, and Project Inspectors, from Battle Mountain Field Office, have the direct responsibility to ensure the contractor's compliance with the contract stipulations.

The Assistant Field Manager for Renewable Resources and the Field Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, and Palomino Valley Corral offices.

All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

14. Glossary

Appropriate Management Level - The number of wild horses and burro which can be sustained within a designated herd management area which achieves and maintains a thriving natural ecological balance keeping with the multiple-use management concept for the area.

Authorized Officer - An employee of the BLM who has been delegated the authority to perform the duties described in these Standard Operating Procedures. See BLM Manual 1203 for explanation of delegation of authority.

Census - The primary monitoring technique used to maintain a current inventory of wild horses and burros on given areas of the public lands. Census data are derived through direct visual counts of animals using a helicopter.

Contracting Officer (CO) - Is the individual responsible for an awarded contract who deals with claims, disputes, negotiations, modifications and payments. Appoints CORs and PIs.

Contacting Officers Representative (COR) - Acts as the technical representative for the CO on a contract. Ensures that all specifications and stipulations are met. Reviews the contractor's progress, advises the CO on progress, problems, costs, etc. Is responsible for review, approval, and acceptance of services.

Evaluation - A determination based on studies and other data that are available as to if habitat and population objectives are or are not being met and where an overpopulation of wild horses and burros exists and whether actions should be taken to remove excess animals.

Excess Wild Horses or Burros - Wild free-roaming horses or burros which have been removed from public lands or which must be removed to preserve and maintain a thriving ecological balance and multiple-use relationship.

Genetically Viable - Fitness of a population as represented by its ability to maintain the long-term reproductive capacity of healthy, genetically diverse members.

Health Assessment - Evaluation process based on best available studies data to determine the current condition of resources in relation to potential or desired conditions.

Healthy Resources - Resources that meet potential or desired conditions or are improving toward meeting those potential or desired conditions.

Henneke Condition Scoring System for Horses - A system developed based upon visual appraisal and palpable fat cover, to compare the body condition of horses. Areas of the horse's body which reflect changes in body fat content were selected and a condition score system developed. The areas selected as being indicative of changes in stored fat are the lumbar spinous areas; ribs, tailhead, the area behind the shoulder, neck and withers. The following is the rating system:

1). Poor, this animal is considered emaciated; 2). Very Thin, 3). Thin, 4). Moderately Thin, this is the minimum acceptable amount of body fat, but not enough for the horse to handle illness or extreme stress, 5). Moderate, the average performance horse will score within this range, 6). Moderate to Fleshy, this is a good conditioned pleasure horse, 7). Fleshy, 8). Fat, 9). Extremely Fat (Summarized from *Maintain a horse in good condition, a condition score system for horses*, by Don R. Henneke. printed in Wild Horse and Burro News.

Herd Area - The geographical area identified as having been used by wild horse and burro populations in 1971, at the time of passage of the Wild Free-roaming Horse and Burro Act.

Herd Management Area - The geographical area as identified through the land use planning process established for the long-term management of wild horse and burro populations. The boundaries of the herd management area may not be greater than the area identified as having been used by wild horse and burro populations in 1971, at the time of passage of the Wild Free-roaming Horse and Burro Act.

Invasive Weeds - Introduced or noxious vegetative species which negatively impact the ecological balance of a geographical area and limit the areas potential to be utilized by authorized uses.

Metapopulation (complex) - A population of wild horses and burros comprised of two or more smaller, interrelated populations that are linked by movement or distribution within a defined geographical area.

Monitoring - Inventory of habitat and population data for wild horses and burros and associated resources and other authorized rangeland uses. The purpose of such inventories is to be used during evaluations to make determinations as to if habitat and population objectives are or are not being met and where an overpopulation of wild horses and burros exists and whether actions should be taken to remove excess animals.

Multiple Use Management - A combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals watershed, domestic livestock, wild horses, wild burros, wildlife, and fish, along with natural, scenic, scientific, and historical values.

Project Inspector - Coordinates with the COR assigned to a contract to support his/her responsibility for review, approval, and acceptance of services.

Research - Science based inquiry, investigation or experimentation aimed at increasing knowledge about wild horses and burros conducted by accredited universities or federal government research organizations with the active participation of BLM wild horse and burro professionals.

Science Based Decision Making - Issuance of decisions affecting wild horses and burros, associated resources and other authorized rangeland uses incorporating best available habitat and population data and in consultation with the public.

Studies - Science based investigation of specific aspects of wild horse and burro habitat or populations in supplement to established monitoring. These investigations would not be established following rigid experimental protocols and could include drawing blood on animals to study genetics, disease and general health issues and population dynamics such as reproduction and mortality rates and general behavior.

Thriving Natural Ecological Balance - An ecological balance requires that wild horses and burros and other associated animals be in good health and reproducing at a rate that sustains the population, the key vegetative species are able to maintain their composition, production and reproduction, the soil resources are being protected, maintained or improved, and a sufficient amount of good quality water is available to the animals.

Attachment C – Idaho Standards for Rangeland Health

The following section identifies the Idaho standards for rangeland health.

Standard 1 (Watersheds) -Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard 2 (Riparian Areas and Wetlands) -Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard 3 (Stream Channel/Floodplain) -Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard 4 (Native Plant Communities) -Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard 5 (Seedings) -Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

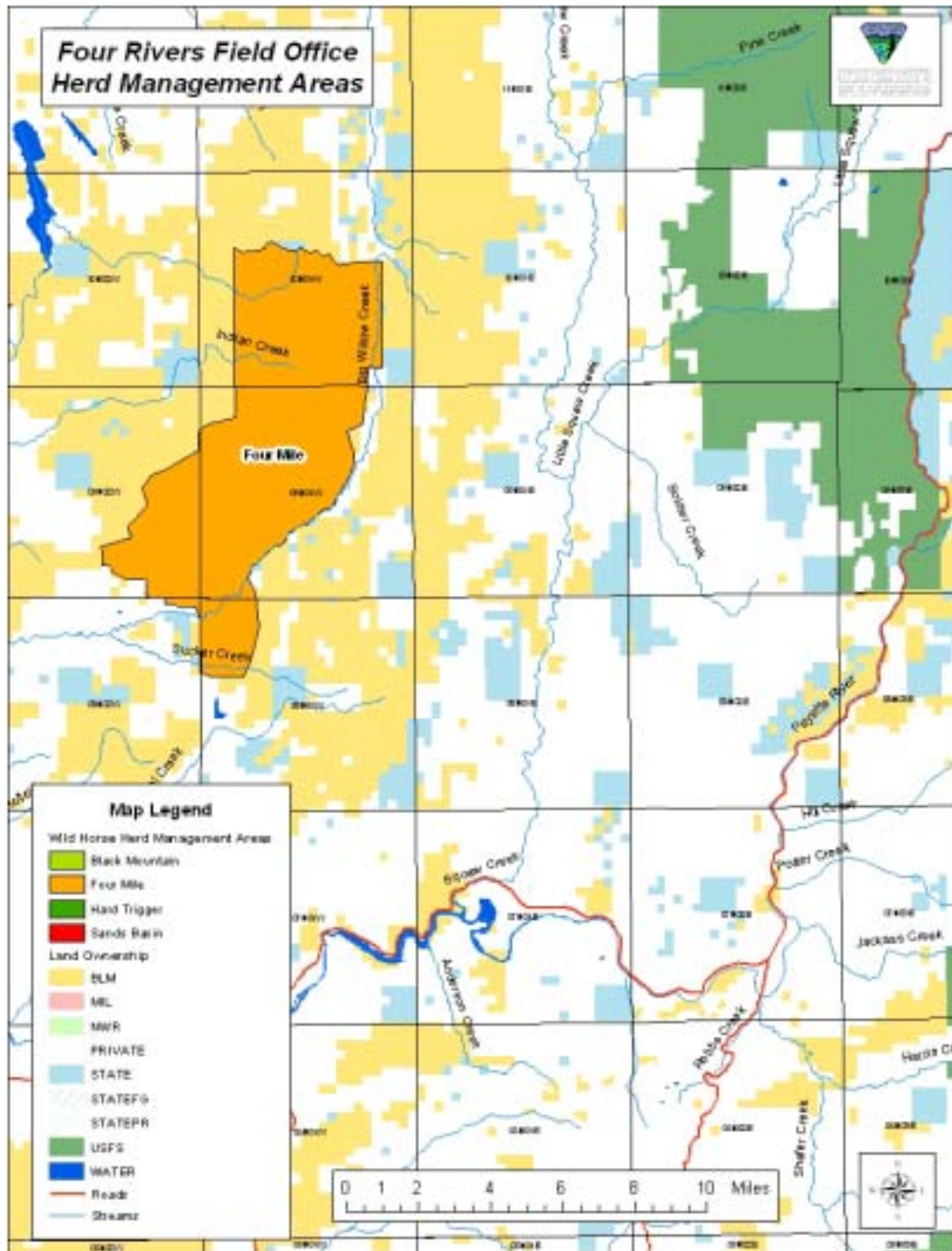
Standard 6 (Exotic Plant Communities, Other than Seedings) -Exotic plant communities, other than seedings, will meet minimum requirements of soil suitability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

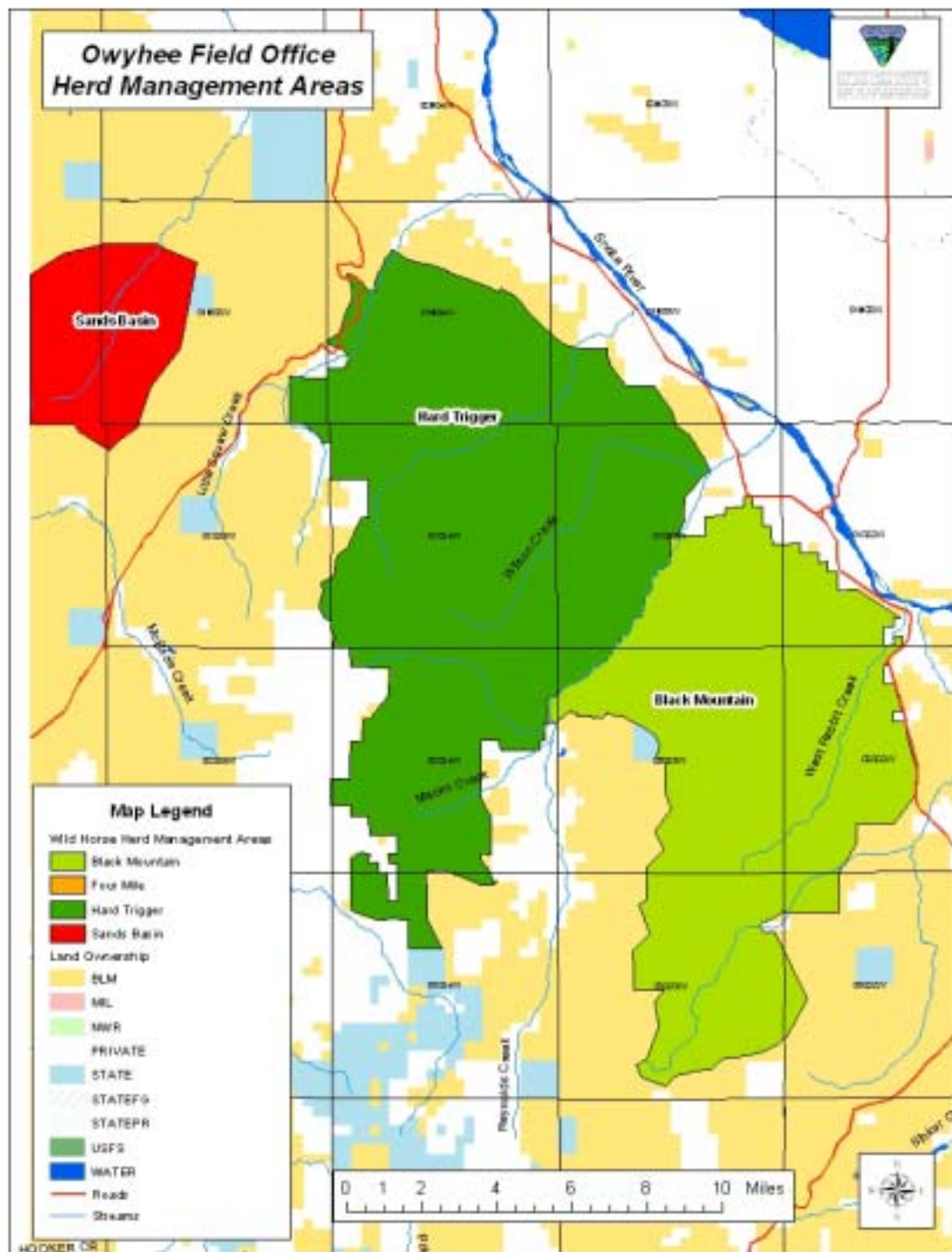
Standard 7 (Water Quality) -Surface and ground water on public lands to comply with Idaho Water Quality Standards.

Standard 8 (Threatened and Endangered Plants and Animals) -Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Appendix 1

Herd Management Area Boundary Maps





Appendix 2

2002 Census Data and Herd Production Rates

Idaho Wild Horse Population Estimates for 2003 from 2002 Census

HMA	Bands	#Adults	#Foals	Notes
Four-Mile	12	55	11	Total $66 \times 20\% = 79$ PR 20% 2001 PR= 23% 2002 = 20%
Hardtrigger	18	94	24	Total $118 \times 26\% = 149$ 2001 PR= 29%, 2002 PR= 26%
Black Mountain	13	58	15	Total $73 \times 22\% = 89$ 2001 PR= 22%, 2002 PR= 22%
Sands Basin	7	41	14	Total $54 - 15^{***} = 39 \times 34\% = 52$ 2001 PR= 30%, 2002 PR= 34%
				Gather to Low Population Range = 203 horses removed. Gather to mid-point of range = 125 horses removed.

* Estimated values, population after 2002 gather was 185.

***15 horses were removed during emergency gather FY2003.

PR = Production Rate = $\frac{\text{foals}}{\text{adults}}$

Appendix 3

Historic Census and Removal Data

Wild Horse Census Data for the Owyhee F. O. HMAs.

Year	Black Mountain.	Hardtrigger	Sands Basin
2001	58	75	37
2000**	77	85	62
1999	56	50	48
1998	42	67	47
1997**	61	121	72
1996*			
1995	28	62	52
1994**	52	135	41***
1993	43		36
1992	41	58	24
1991**	59	112	34

* Census data is not complete.

** Horses were gathered during this fiscal year.

*** Sands Basin was not gathered this year.

Wild Horse Census Data - Four-mile HMA

Year	Population
1993	12
1995	22
1997	37
1999	46
2000	54
2001	64
2002	66

The population was re-established in 1991 with nine horses from the Owyhee HMAs.

Appendix 4

Summary of Genetic Viability and Population Modeling in Wild Horse Herds

1. Genetic Viability

The concept of Minimum Viable Populations (MVP), or the minimum number of breeding individuals required for a population to survive over a period of time has been a central issue to conservation biology for years. The BLM is now taking MVP into consideration in the management of its wild horse herds in response to the challenge of balancing wild horse impacts on their ecosystem with a herd size large enough to constitute a viable population size. A wild horse population managed at numbers low enough to prevent ecological damage may pose problems to the long-term health and genetic diversity of a herd.

Genetic diversity, within wild horse and burro populations, refers to the entire complement of genetic material representative of all individuals (or a sample of individuals) from within the population. Some populations may possess genetic uniformity to a certain “type” or breed of horse, but management interests are specific to maintaining a maximum diversity of genetic material which appears representative of each herd. Promotion of diversity will minimize the effects of genetic drift, or the random loss of genetic material due to mating processes, and maximize genetic health of the herds.

The genetic effective population size (N_e) is a measure of the total number of mares and stallions which contribute genetically, through successful breeding, to the next generation. Although no standard goal for N_e currently exists for wild horse and burro herds, a goal of $N_e=50$, which comes from domestic breeding guidelines, can be conservatively applied. Populations, where N_e is calculated to be less than 50, may experience higher rates of loss of genetic diversity than would be considered acceptable under recommended management goals.

Viable management alternatives for conserving genetic diversity within managed wild horse herds may take several forms. Some options to be considered might include: altering population age structure (through removals) to promote higher numbers of reproductively-successful animals; altering breeding sex ratios (through removals) to encourage a more even participation of breeding males and females; increasing generation intervals (and reducing the rate of loss of genetic material) by removing (or contracepting) younger versus older mares; and/or introducing breeding animals (specifically females) periodically from other genetically similar herds to help in conservation efforts. In this last scenario, only one or two breeding animals per generation (~10 years) would need to be introduced in order to maintain the genetic resources in small populations of less than 200 animals.

2. Population Modeling

The Wild Horse Population Model Version 3.2 developed by Dr. Steve Jenkins was used to estimate the population growth and size of herds five years after the gather. The data used in the statistical analysis of the Owyhee Front HMAs was extrapolated from the 2002 Census and the age and sex structure of the 2000 Gather. The data used for analysis of the Four-mile Herd was estimated from the 2002 Census and past ground census /sighting data. The Four-mile HMA has not been gathered since the re-introduction of horses into the area in 1991.

The environmental and demographic model option was selected as a means to project population growth while weighing both environmental and demographic variables during 'good' and 'bad' years. Results of the Jenkins population model are not considered a 'prediction' of what will happen to the herds in the future. Results of the model are being used as an aid to evaluate the management practices that are identified in this document and to project population growth.

The modeling analysis made the following assumptions:

1. The current age selection policy would continue through the lifetime of the modeling analysis.
2. Gathers would be completed every four years with the herds lowered to the low AML limit.
3. The herd would rise to at least the high AML limit prior to a gather.
4. Foals are not included in the herd appropriate management level.
6. 80% of the herd can be located during gather operations; 20% are not found
7. Fertility control and removal are being used as management tools.

Population Size graph

The population size summary graph shows cumulative frequency distributions across trials of minimum population sizes, average population sizes, and maximum population sizes. Suppose you ran 100 trials in a simulation. The minimum population size in each trial is the smallest number of horses that were present in the population in any year of that trial. This might have been the first year, or the last, or some intermediate year, and the year in which the minimum occurs is not the same for all trials. The graph will show 100 points in a light blue color, each point representing the minimum for one trial. These points are arranged in order from smallest to largest, so the leftmost point of this sequence is the minimum of the minima of population sizes, or the smallest population size ever seen in x years of 100 trials.

Growth Rate Graph

The growth rate graph shows the distribution of average growth rate across all trials in graphical format. The direct effects of removals are not counted in computing annual growth rates, although a selective removal may change the average foaling rate or survival rate of individuals in the population and may indirectly affect the growth rate. Fertility control clearly was reflected in a reduction of population growth rate compared to the observed rate from the 2002 Census.

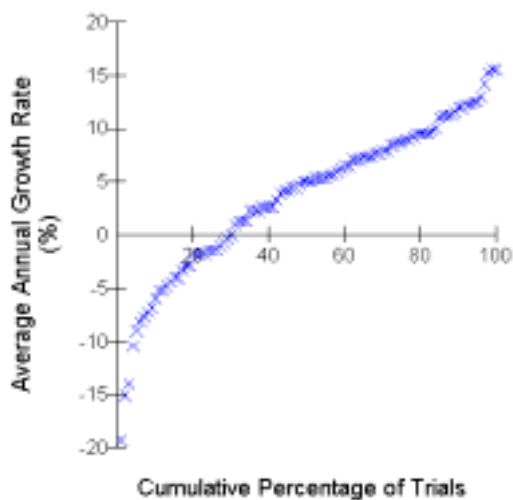
A. Black Mountain HMA

1. Population Size



For 5 years and 100 trials, the lowest number of 0 – 20+ year old horses obtained was 31 and the highest was 130. In half the trials, the minimum population size in 5 years was less than 70 and the maximum was less than 92. The average population size for five years ranged from 53 – 98 with a median 79. The AML range for the Black Mountain HMA is 30 – 60.

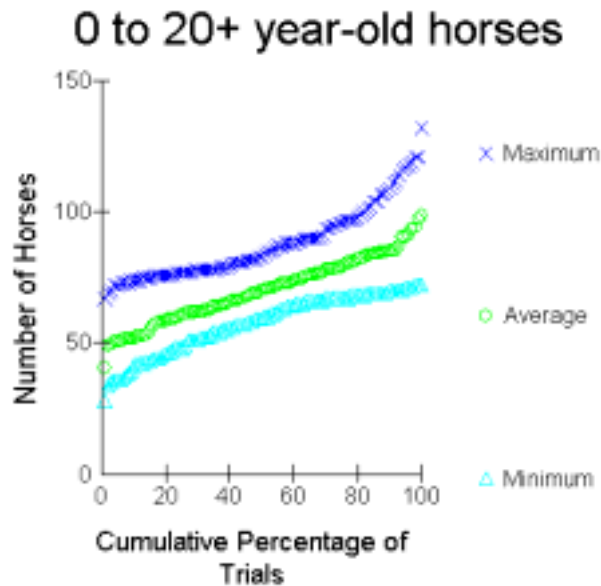
2. Growth Rate



The population growth graph indicates the average growth rate over four years. In 100 trials, the lowest growth rate was -19.3%, while the highest growth rate was 15.5%. In half the trials the median growth rate was 5.1%. The 2002 uncontrolled growth rate for this population was 22%.

B. Four-mile HMA

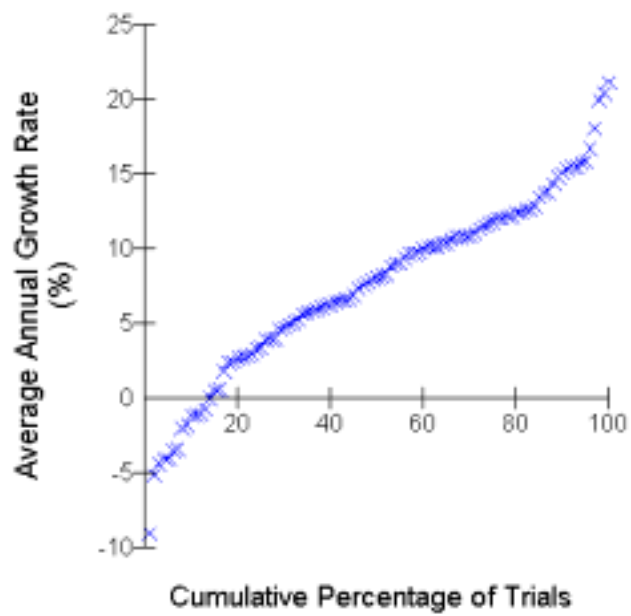
1. Population Size



In five years and 100 trials, the lowest number of 0 to 20+ year old horses obtained was 28 and the highest 132. In half the trials, the minimum population size in five years was less than 60 and the maximum less than 84. The average population for five years was 41 to 98 with a median of 70. The AML range for the Four-mile HMA is 37 – 60.

2. Growth Rate

The population growth graph indicates the average growth rate over four years. In 100 trials, the lowest growth rate was -9%, while the highest growth rate was 21.2%. In half the trials the median growth rate was 8.2%. The 2002 uncontrolled growth rate for this population was 20%.



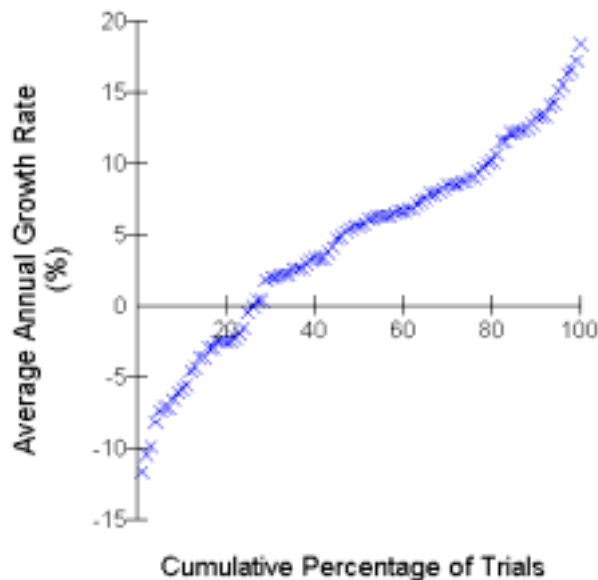
C. Hardtrigger HMA

1. Population Size



In five years and 100 trials, the lowest number of 0 to 20+ year old horses obtained was 58 and the highest 232. In half the trials, the minimum population size in five years was less than 114 and the maximum less than 150. The average population for five years was 82 to 171 with a median of 128. The AML range for the Hardtrigger HMA is 66-130.

2. Growth Rate



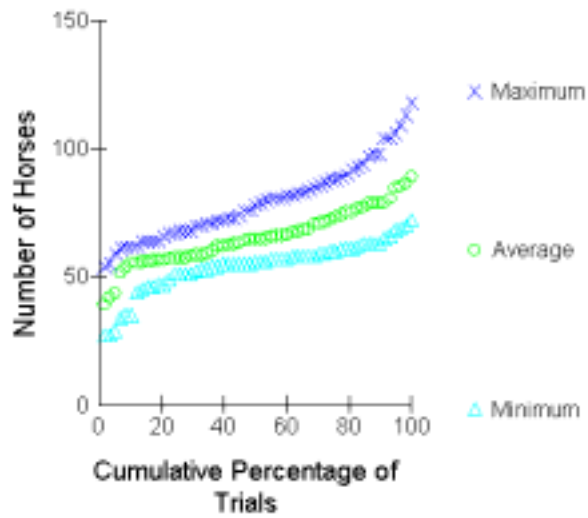
The population growth graph indicates the average growth rate over four years. In 100 trials, the lowest growth rate was -11.6%, while the highest growth rate was 18.4%. In half the trials the median growth rate was 5.7%. The 2002 uncontrolled growth rate for this population was 26%.

D. Sands Basin HMA

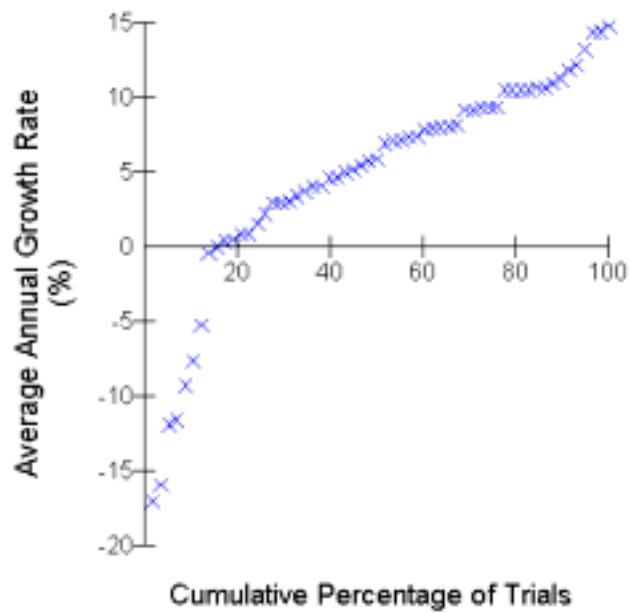
1. Population Size

In five years and 100 trials, the lowest population of 0 to 20+ year old horses obtained was 20 and the highest 102. In half the trials, the minimum population size in five years was less than 52 and the maximum less than 67. The average population for five years was 33 to 73 with a median of 58. The AML range for the Sands Basin HMA is 33 – 64.

0 to 20+ year-old horses



2. Growth Rate



The population growth graph indicates the average growth rate over four years. In 100 trials, the lowest growth rate was -22%, while the highest growth rate was 17.2%. In half the trials the median growth rate was 4.7%. The 2002 uncontrolled growth rate for this population was 34%.

Summary

Populations of wild horses on these HMAs have the capacity for rates of increase as high as 30% per year. Research has shown that unmanaged populations of wild horses might eventually stabilize (due to density-dependent regulatory mechanisms) at very high numbers, near what is known as their food-limited ecological carrying capacity. At these levels, however, the herds would show obvious signs of ill-fitness including poor individual animal condition, low birth rates, and high mortality rates in all age classes due to disease and/or increased vulnerability to predation. In addition, supporting range conditions would be noticeably deteriorated, with much of the available habitat showing symptoms of irreparable over-grazing. These herds are currently managed close to economic carrying capacity which allows the herds to be healthy with strong foal production and survival rates, but at a three year gather cycle. The model analysis indicates that with fertility control and removals, production rates would decline and the herds could be managed at a four year gather cycle.